

# Labor Operation Times

Defender

# DEFENDER 90

## LABOR OPERATION

## TIMES

***1994 MODEL YEAR ONWARDS***

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# INTRODUCTION

**LABOR TIMES AND ALLOWANCES**

All operation times are given in DECIMAL HOURS.

Minimum time is 0.10 hour with the exception of operations with numbers having an additional pair of digits, e.g. **12.60.32/01.**

The times listed in this publication are the result of careful study of the operations concerned. They reflect the average time a technician should take to carry out the operation in a workshop with average facilities efficiently. They do not reflect special familiarity.

The following items have been allowed for in operation times:

- ***** "Wrench Time (Spanner Time)" including time taken to carry out intermediate operations, e.g. opening and closing hood, fitting and removing fender covers, the use of jacks and lifts, draining and refilling units cleaning.
- ***** Time taken to drive vehicle in and out of the shop and place the vehicle in position for repair
- ***** Repair diagnosis time. Includes use of common testers such as volt - ohmmeter, ammeter, timing light or engine analyzer that are included in service manual or technical bulletin publications or instructions.
- ***** Time taken to obtain and return special tools.
- ***** Time taken receiving instruction concerning the operation.
- ***** Time taken to obtain appropriate parts.
- ***** Time taken to carry out associated clerical work..
- ***** Time taken for final test and quality checks.

No allowance has been included for inaccessibility through damage, removing extras or special fitments, freeing seized parts, removing rusted or broken studs or bolts, or subsequent repairs after test.

Allowances are made within the final time to change over ancillaries from the removed part or component and to fit them onto the new part or component.

EACH OPERATION IS COMPLETE IN ITSELF UNLESS OTHERWISE STATED

e.g. Brake Master Cylinder Replace time includes allowance for bleeding brakes.

The method given in the Repair Manual describes how the time may be achieved.

**DEFINITIONS**

The operation **"Replace"**refers to the removing of an existing component or part, and fitting a new component or part. Labor operations that indicate "replace" may not be used when a component or part is removed for its repair and subsequent reinstallation (R&I)

Times given for **"Overhaul"**operations include removing the component from its installed position, disassemble, clean and inspect all parts, rebuild the unit (assemble) with the same or new parts, reinstall and adjust.

The term **"Unit"**refers to an assembly in the state in which it can be most efficiently be removed from the vehicle.

The term **"Set"**applies to the complete car set of the components referred to in an operation unless otherwise defined (i.e. brake set - all four wheels).

**NUMBERING**

**Note:The labor operations are printed with decimal points for readability only. Do not enter them when entering service records.**

The operation numbers comprise six digits arranged in three pairs. The first pair indicates the major assembly, the second pair the components or part of the major assembly or system and the third pair indicates the operation and any further definition of the parts or component.

**EXAMPLE**

**12.29.11** Cylinder head - replace
**12.** First digit pair (major assembly) - engine
**29.** Second digit pair (component) - cylinder head(s)
**11.** Third digit pair (specific repair or operation) - replace

Operation numbers with an additional pair of digits, e.g. 12.60.32/01, relate to operations which can be performed with the vehicle or major system in different stages of assembly and appear immediately following the operation to which they are related.

**LABOR OPERATION USE**

Engineers, Product Reliability and Warranty Administration Groups utilize repair or fault codes for various reasons. For this reason, it is extremely important that correct and appropriate labor operation numbers are selected and entered on the warranty claim.

Each claim must begin with the labor operation that caused the complaint. In the case where a failure causes other faults, i.e. axle seal contaminates brake pad linings, the first operation number to be entered into the warranty claim system is the labor operation number to replace the axle seal.

The labor operation to replace the brake pads is second within the same claim number. This format allows the LRNA Warranty System to assign the appropriate failure code for Land Rover statistical and analysis uses. This also puts the repair into perspective.

**NON - SCHEDULED TIME**

If an operation does not exist for a repair, use a "00" operation. To do this, substitute the **5th**and **6th**characters with **"00"**e.g. **12.60.32**becomes **12.60.00**. Only the actual time taken to perform the repair should be claimed. All unscheduled labor must be documented by clock times.

In the event that both scheduled and unscheduled operations are claimed for a single repair and only one clock time is used, (no separate time punch used for unscheduled) LRNA will allow a maximum of 100% efficiency for the entire job. The portion being claimed as unscheduled time shall be equal to the clock time less the allowance for the scheduled labor operation.

**OVERLAP**

Labor operations that clearly include removal and replacement of one component to replace a different component, as outlined in the Workshop Manual, cannot be submitted as two separate labor operations. For example, no additional time is allowed to replace the water pump (26.50.01) if at the same time the front timing gasket (12.65.04) is being replaced.

**CUSTOMER PROBLEM ANALYSIS, SYSTEM DIAGNOSIS & REPAIR TESTING**

The following are definitions of the terms used in the preceding statement:

**Customer problem analysis -** The process of transacting the customer’s concern, complaint, or question to a symptom that can effectively be addressed by a technician if needed, i.e. A/C insufficient cooling, brakes pull, engine hesitates, etc. **"Customer Problem Analysis"** includes those conditions which are readily apparent to the normal senses of sight, touch, sound and smell. **"Customer Problem Analysis"**is the duty of service management and/or the service advisor.

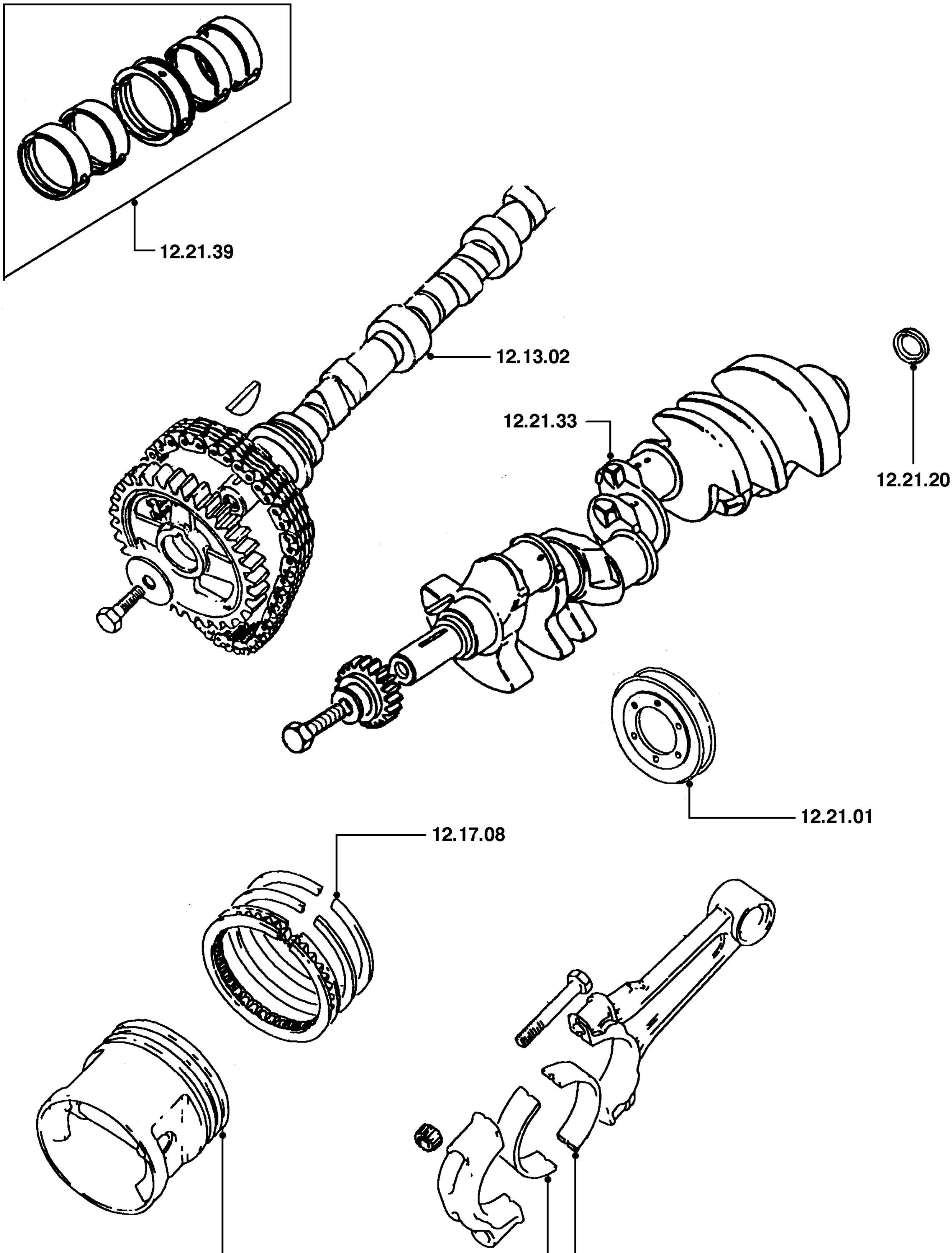
**Symptom Diagnosis** - The process of finding the source of a problem based on a detailed, systematic and logical approach, i.e. finding the source of an electrical problem by following the trouble trees and/or diagnostic charts. **"Symptom Diagnosis"**is the responsibility of the technician and is included in the published labor time guide allowances.

Repair Testing - The checks, tests and measurements needed in the repair to find the cause of failure or identify faulty parts. Examples are:

* Cleaning and inspection of all parts such as gears, clutch plates.
* Use of test equipment classified as LRNA essential tools.
* Use of common testers such as volt-ohmmeter, ammeter or timing light that are included in service manuals and technical service publications.

(Operations include adjust ignition, fuel system or kick down cable)

| | | | |
|---|---|---|---|
| **12.13** | **CAMSHAFT** | | |
| 12.13.02 | Camshaft - front/LH/each - replace ............................................ . | 07.50 | 1L1 |
| 12.13.24/01 | Cam plug/oil gallery plugs - reseal - with transmission removed .. . | 00.20 | 1A3 |
| **12.17** | **CONNECTING RODS & PISTONS (Includes, glaze break & measure cylinder bores where applicable)** | | |
| 12.17.03 | Piston assemblies - engine set - replace. .................................. . | 14.10 | 1E1 |
| 12.17.08 | Piston rings - engine set - replace ............................................... . | 11.40 | 1E2 |
| 12.17.16 | Bearings - connecting rods - engine set - replace - includes . measure journals ............................................................................ | 02.40 | 1C4 |
| **12.21** | **CRANKSHAFT** | | |
| 12.21.01 | Pulley - crankshaft - replace ....................................................... . | 01.00 | 2G1 |
| 12.21.14 | Oil seal - crankshaft - front - replace .......................................... . | 01.10 | 1Q1 |
| 12.21.20 | Oil seal - crankshaft - rear - replace .......................................... . | 07.30 | 1Q2 |
| 12.21.20/01 | Oil seal - crankshaft - rear - replace - engine removed ................ . | 00.50 | 1Q2 |
| 12.21.33 | Crankshaft - replace - includes mains bearings............................ . | 12.10 | 1C1 |
| 12.21.39 | Bearings - main - engine set - replace......................................... . | 12.10 | 1C3 |
| **12.25** | **CYLINDER BLOCK** | | |
| 12.25.01 | Compression - test........................................................................ . | 00.90 | * |
| 12.25.21 | Bracket - alternator mounting - replace ....................................... . | 00.80 | 7D7 |

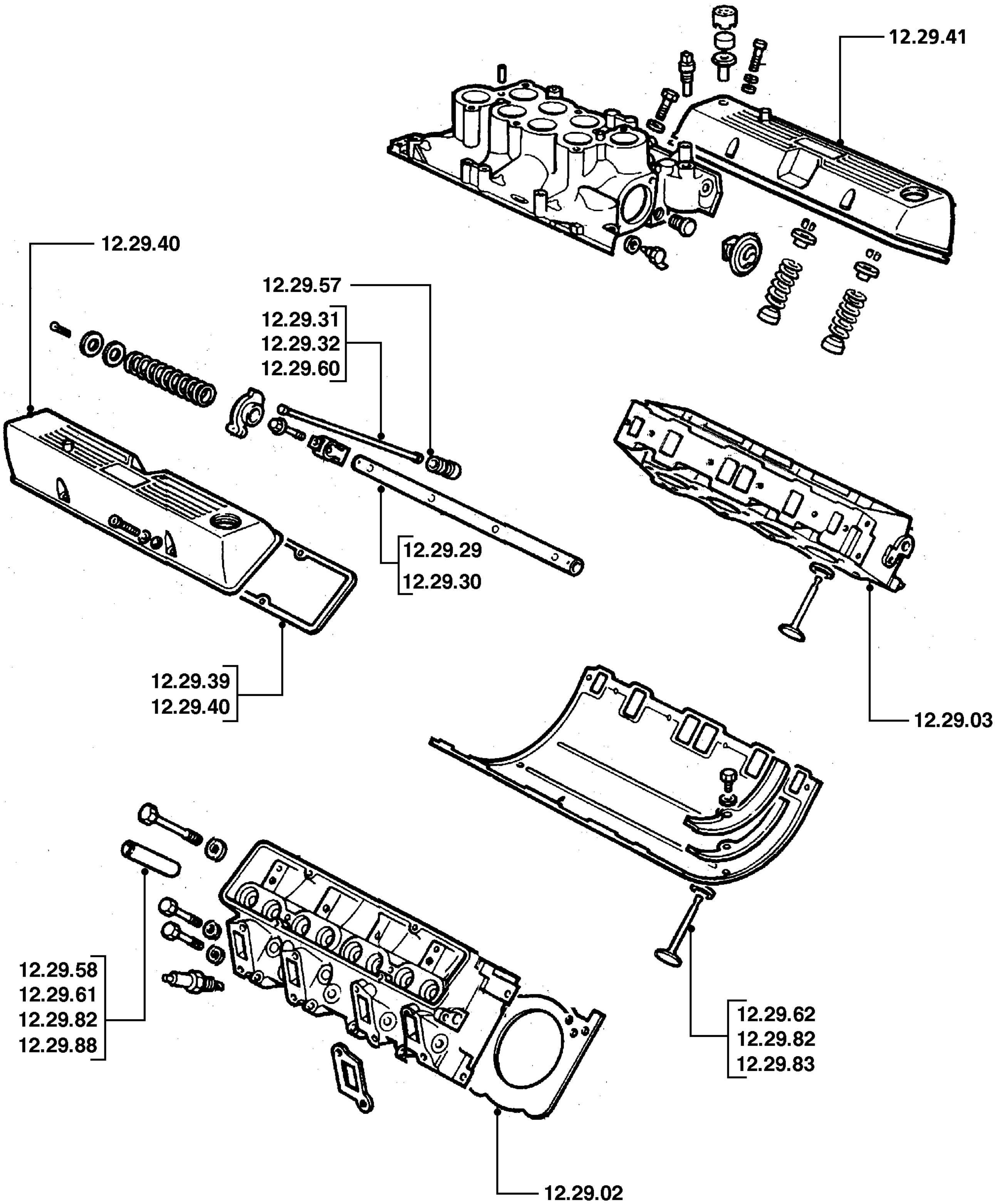



DRT28

(Operations include adjust ignition, fuel system or kick down cable)

| | | | |
|---|---|---|---|
| **12.29** | **CYLINDER HEAD** | | |
| 12.29.01 | Cylinder heads - remove and reinstall - including gaskets - engine set. | 05.90 | 1S6 |
| 12.29.02 | Cylinder head - remove & reinstall - LH/front/each - includes gasket | 04.30 | 1S6 |
| 12.29.02/01 | Cylinder head - remove & reinstall - LH/front/each - includes gasket - engine removed | 01.70 | 1S6 |
| 12.29.03 | Cylinder head - remove and reinstall - RH/rear - includes gasket | 04.50 | 1S6 |
| 12.29.03/01 | Cylinder head - remove and reinstall - RH/rear - includes gasket - engine removed | 01.80 | 1S6 |
| 12.29.10 | Cylinder heads - engine set - replace - includes reface & grind in valves | 11.50 | 1F1 |
| 12.29.11 | Cylinder head -LH/front/each - replace - includes reface & grind in valves | 06.90 | 1F1 |
| 12.29.12 | Cylinder head - RH/rear - replace - includes reface & grind in valves | 07.10 | 1F1 |
| 12.29.29 | Rocker shaft assembly - LH/front/each - replace | 01.30 | 1H6 |
| 12.29.30 | Rocker shaft assembly - RH/rear - replace | 01.20 | 1H6 |
| 12.29.31 | Push rods - set - LH - replace. | 01.30 | 1H4 |
| 12.29.32 | Push rods - set - RH - replace. | 01.30 | 1H4 |
| 12.29.39 | Gaskets - covers - camshaft/valve - engine set - replace | 01.80 | 1S1 |
| 12.29.40 | Gasket - cover - camshaft/valve - LH/front/each - replace | 01.00 | 1S1 |
| 12.29.41 | Gasket - cover - camshaft/valve - RH/rear - replace | 01.00 | 1S1 |
| 12.29.49 | Rocker shaft assembly - LH/front/each - overhaul | 01.60 | 1H6 |
| 12.29.50 | Rocker shaft assembly - RH/rear - overhaul | 01.50 | 1H6 |
| 12.29.54 | Rocker shaft assembly - engine set - replace | 02.20 | 1H6 |
| 12.29.55 | Rocker shaft assembly - engine set - overhaul | 02.90 | 1H6 |
| 12.29.57 | Tappets/cam followers - engine set - replace | 04.20 | 1H2 |
| 12.29.58 | Valve guide - one only - cylinder head - front/LH - replace - includes reface seat & grind in valve | 04.90 | 1F3 |
| 12.29.58/01 | Valve guide - extra each - cylinder head - front/LH - replace - includes reface seat & grind in valve | 00.50 | 1F3 |
| 12.29.60 | Pushrods - engine set - replace | 02.40 | 1H4 |
| 12.29.61 | Valve guides - engine set - replace - includes reface seats & grind in valves | 14.60 | 1F3 |
| 12.29.62 | Valves - engine set - replace - includes reface seats, grind in valves & replace head gaskets | 10.90 | * |
| 12.29.82 | Valves - LH/front/each bank - head set - replace - includes reface seats, grind in valves & replace head gasket | 06.80 | * |
| 12.29.83 | Valves - RH/rear bank - head set - replace - includes reface seats, grind in valves & replace head gasket | 07.00 | * |

| | | |
|---|---|---|
| **A - WRONGLY ADJUSTED** | **J - WORN/STRETCHED** | **S - OPEN CIRCUIT/BLOCKED** |
| **B - POROUS/ADRIFT** | **K - NOISY/CHAFED** | **T - SHORT CIRCUIT/THREAD DAMAGE** |
| **C - BAD FIT** | **L - JUDDER/POOR CONNECTION** | **U - INACCURATE/SLIPPING** |
| **D - BROKEN** | **M - BODY/COOLANT LEAKS/BURNT** | **V - BULB/LIGHT UNIT FAILURE** |
| **E - CRACKED/SPLIT/CUT** | **N - LEAKS - NOT COOLANT LOSS** | **W - VIBRATION/OUT OF BALANCE** |
| **F - SEIZED/STIFF** | **P - DIFFICULT ENGAGEMENT** | **X - BRAKE PULL/SURFACE DAMAGE** |
| **G - LOOSE/SEAK SYNCHROMESH** | **Q - FADED/STAINED/DISCOLOURED** | **Z - INOPERATIVE** |
| **H - CORRODED/PLATING FAILURE** | **R - FACTORY DAMAGE** | |

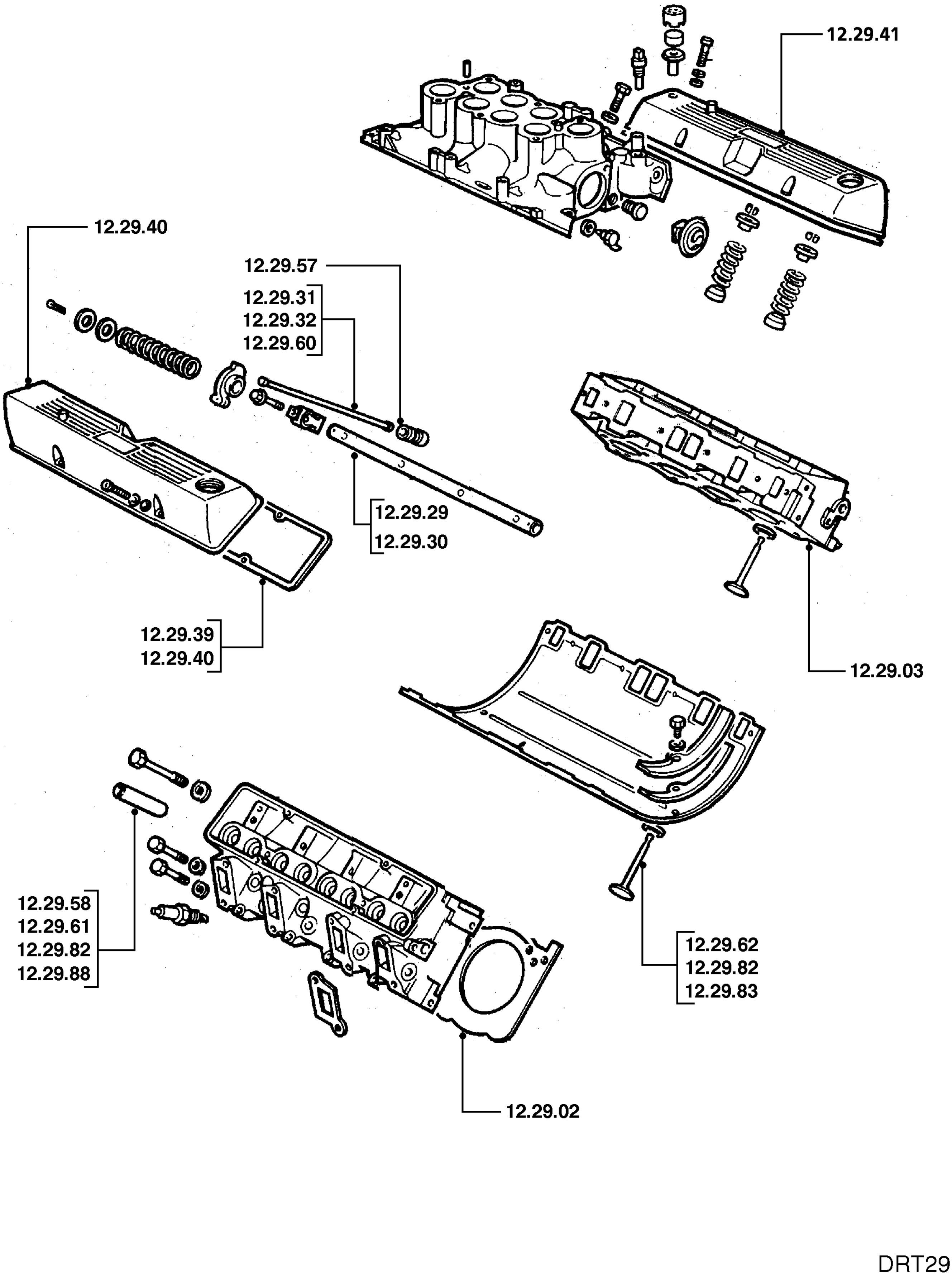

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12.29.02

DRT29

(Operations include adjust ignition, fuel system or kick down cable)

| | | | |
|---|---|---|---|
| **12.29** | **CYLINDER HEAD** | | |
| 12.29.88 | Valve guides - LH/front/each bank - set - replace ........................ . | 08.70 | 1F3 |
| 12.29.89 | Valve guides - RH/rear bank - set - replace.................................. . | 08.80 | 1F3 |
| 12.29.90 | Oil seal - valve stem - inlet - engine set - replace ........................ . | 07.80 | 1Q3 |
| 12.29.93 | Oil seal - valve stem - inlet & exhaust - engine set - replace ........ . | 09.60 | 1Q3 |
| 12.29.98 | Valve guide - one only - cylinder head - RH/rear - replace - . includes reface seat & grind in valve ........................................... | 05.10 | 1F3 |
| 12.29.98/01 | Valve guide - extra each - cylinder head - RH/rear - replace - . includes reface seat & grind in valve ........................................... | 00.50 | 1F3 |

| | | |
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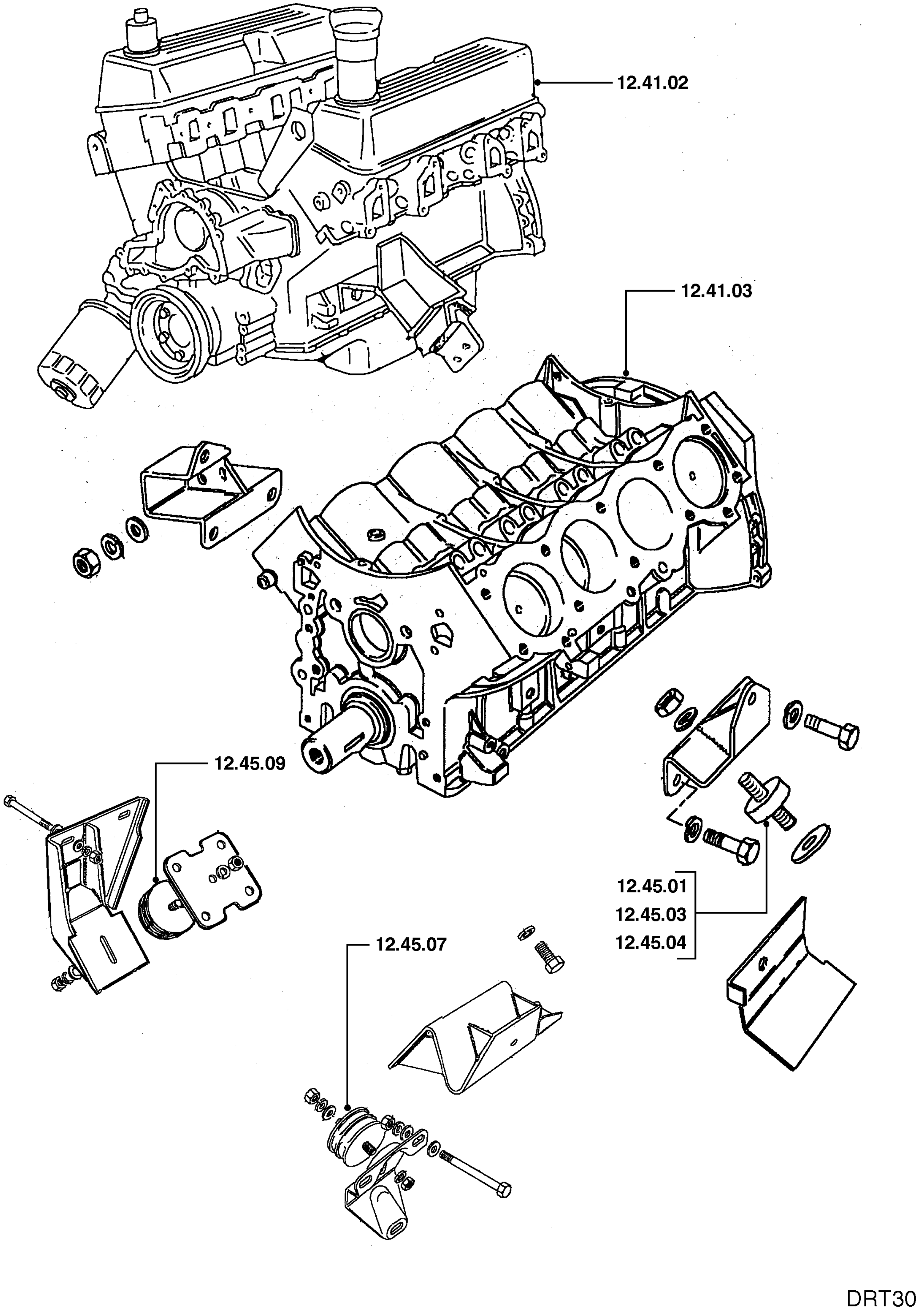


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12.29.02
DRT29

(Operations include adjust ignition, fuel system or kick down cable)

| | | | |
|---|---|---|---|
| **12.41** | **ENGINE ASSEMBLY** | | |
| 12.41.01 | Engine & ancilliaries - replace ...................................................... . | 07.50 | * |
| 12.41.02 | Stripped engine/long block - remove engine, change over ancillary equipment & reinstall .................................................................... | 10.40 | * |
| 12.41.03 | Short block (block with crank and pistons) - replace .................... . | 12.90 | * |
| **12.45** | **ENGINE MOUNTINGS** | | |
| 12.45.01 | Mounting - front - LH - replace...................................................... . | 00.50 | 5C1 |
| 12.45.03 | Mounting - front - RH - replace .................................................... . | 00.50 | 5C1 |
| 12.45.04 | Mountings - front - set - replace.................................................... . | 00.50 | 5C1 |
| 12.45.07 | Mounting - rear - LH - replace....................................................... . | 00.60 | 5C1 |
| 12.45.09 | Mounting - rear - RH - replace. .................................................... . | 00.60 | 5C1 |
| 12.45.10 | Mountings - rear - set - replace .................................................... . | 01.00 | 5C1 |

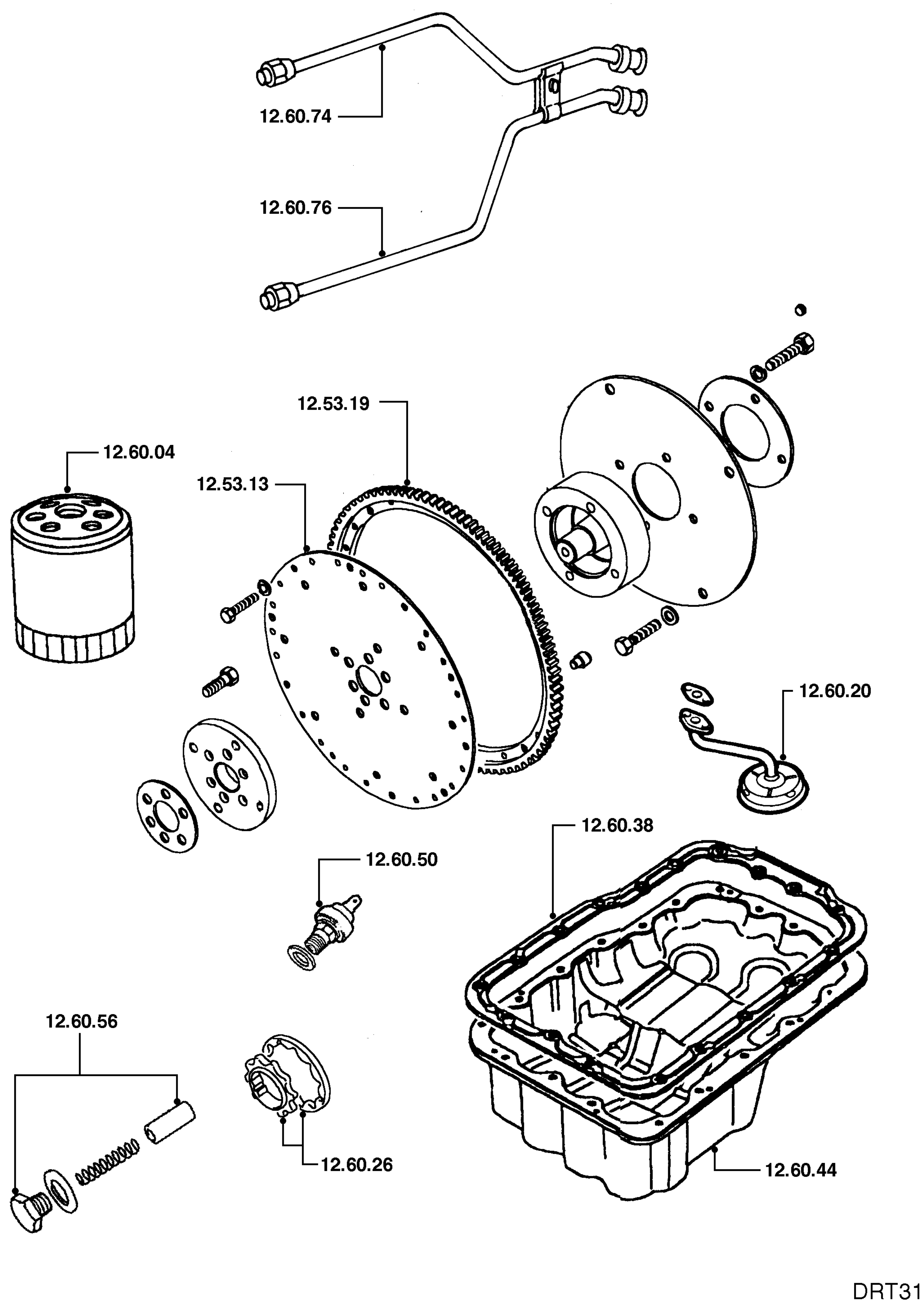
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12.41.02
12.41.03
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12.45.07
12.45.01
12.45.03
12.45.04
DRT30

(Operations include adjust ignition, fuel system or kick down cable)

| | | | |
|---|---|---|---|
| **12.53** | **FLYWHEEL & DRIVE PLATE** | | |
| 12.53.13 | Drive plate - automatic - replace | 07.00 | 4A5 |
| 12.53.13/01 | Drive plate - automatic - replace - with transmission removed | 00.20 | 4A5 |
| 12.53.19 | Ring gear - starter - replace | 07.00 | 1C7 |
| **12.60** | **LUBRICATION SYSTEM** | | |
| 12.60.04 | Filter - oil - replace | 00.30 | 2A6 |
| 12.60.20 | Strainer - oil pick up - replace | 01.20 | 2A2 |
| 12.60.26 | Pump - oil - replace | 03.30 | 2A1 |
| 12.60.38 | Oil pan to engine - reseal or fit new gasket | 01.10 | 1S5 |
| 12.60.38/01 | Oil pan to engine - reseal or fit new gasket - with engine removed | 00.60 | 1S5 |
| 12.60.44 | Pan - oil - replace | 01.10 | 1N1 |
| 12.60.50 | Switch - oil pressure - replace | 00.30 | 7V4 |
| 12.60.56 | Valve - oil pressure relief - replace | 03.30 | 2A3 |
| 12.60.74 | Hose(s) - feed - oil cooler - replace | 01.00 | 2A9 |
| 12.60.76 | Hose - return - oil cooler - replace | 01.00 | 2A9 |

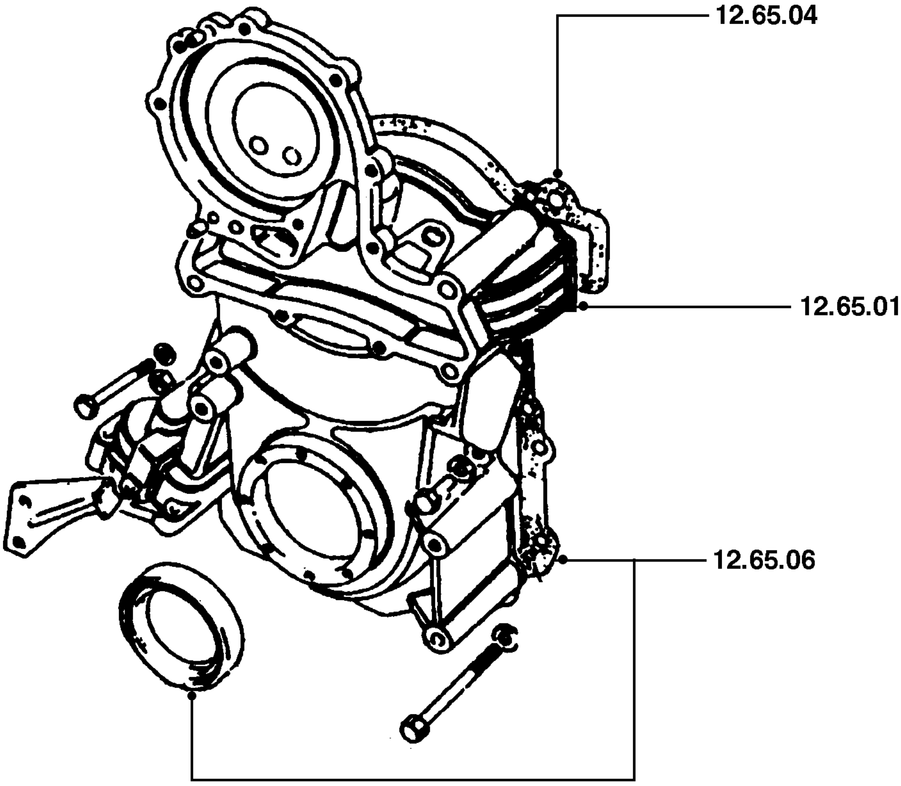
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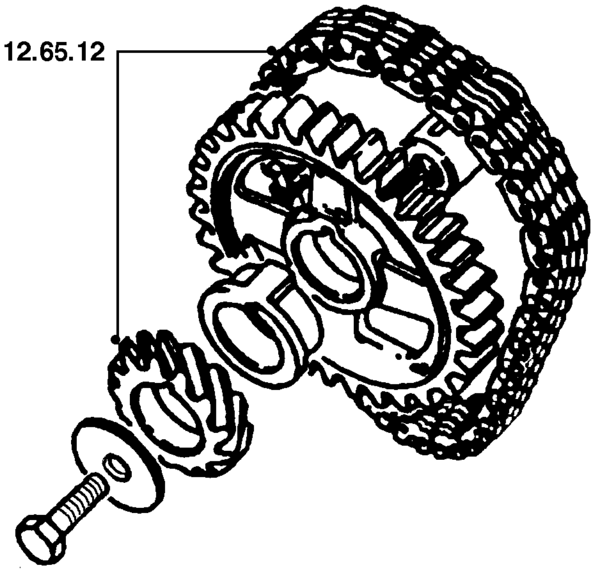

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DRT31

(Operations include adjust ignition, fuel system or kick down cable)

| | | | |
|---|---|---|---|
| **12.65** | **TIMING GEARS, CHAINS, TENSIONERS & GUIDES** | | |
| 12.65.01 | Cover - timing gears - replace. .................................................... . | 03.30 | 1N6 |
| 12.65.04 | Gasket - timing gear cover - replace ........................................... . | 03.20 | 1S2 |
| 12.65.04/01 | Gasket - timing gear cover - replace - with unit removed ............ . | 01.60 | 1S2 |
| 12.65.06 | Oil seal & gasket - timing gear cover - replace ............................ . | 03.20 | 1S2 |
| 12.65.12 | Timing belt/chain & gears - replace .............................................. . | 03.50 | 1K5 |

| | | |
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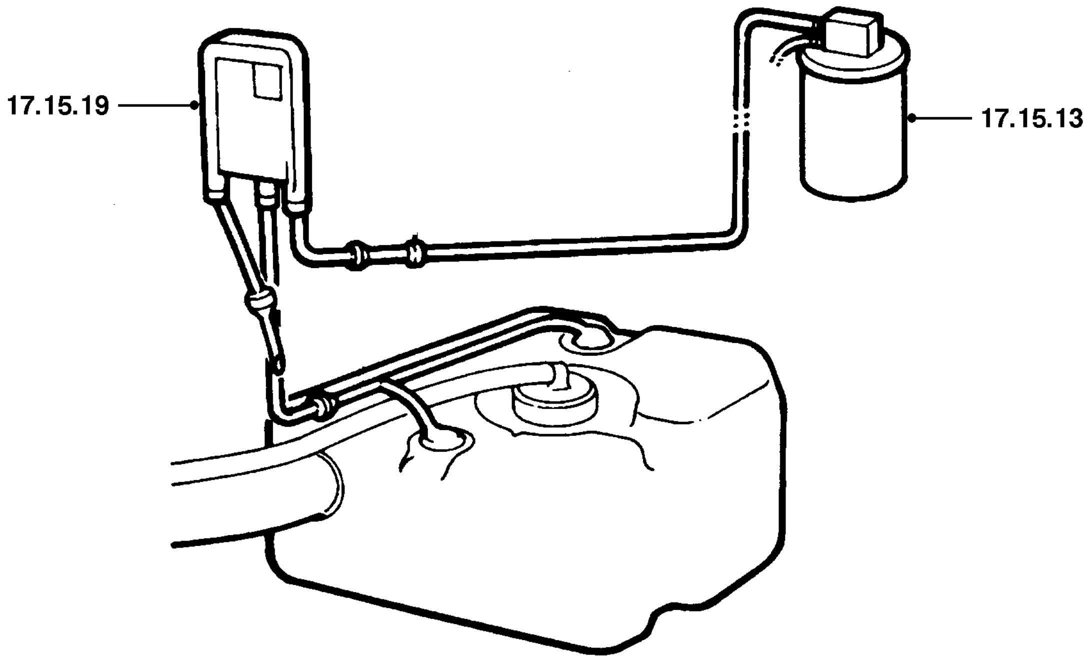


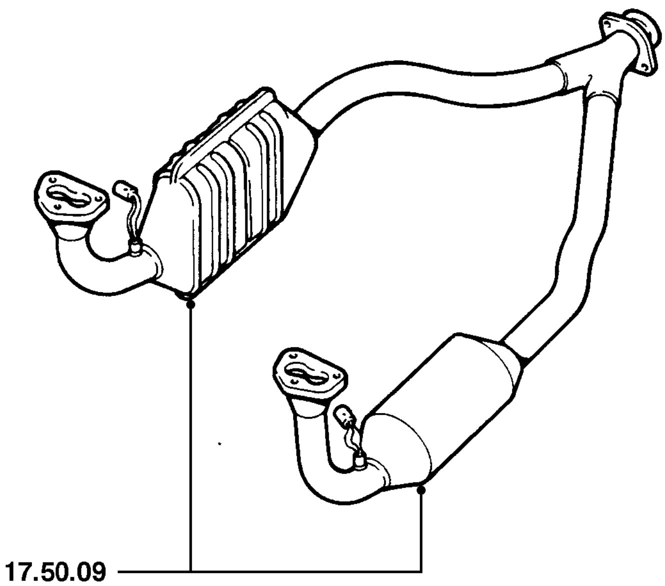




DRT32

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|---|---|---|---|
| **17.15** | **EVAPORATIVE LOSS CONTROL SYSTEMS** | | |
| 17.15.13 | Charcoal canister - replace .......................................................... . | 00.50 | 2R1 |
| 17.15.19 | Expansion tank/vapour seperator - replace .................................. . | 00.50 | 2R7 |
| **17.50** | **CATALYTIC CONVERTOR** | | |
| 17.50.09 | Catalytic converter - down pipe - LH/each - replace .................... . | 01.20 | 2S4 |

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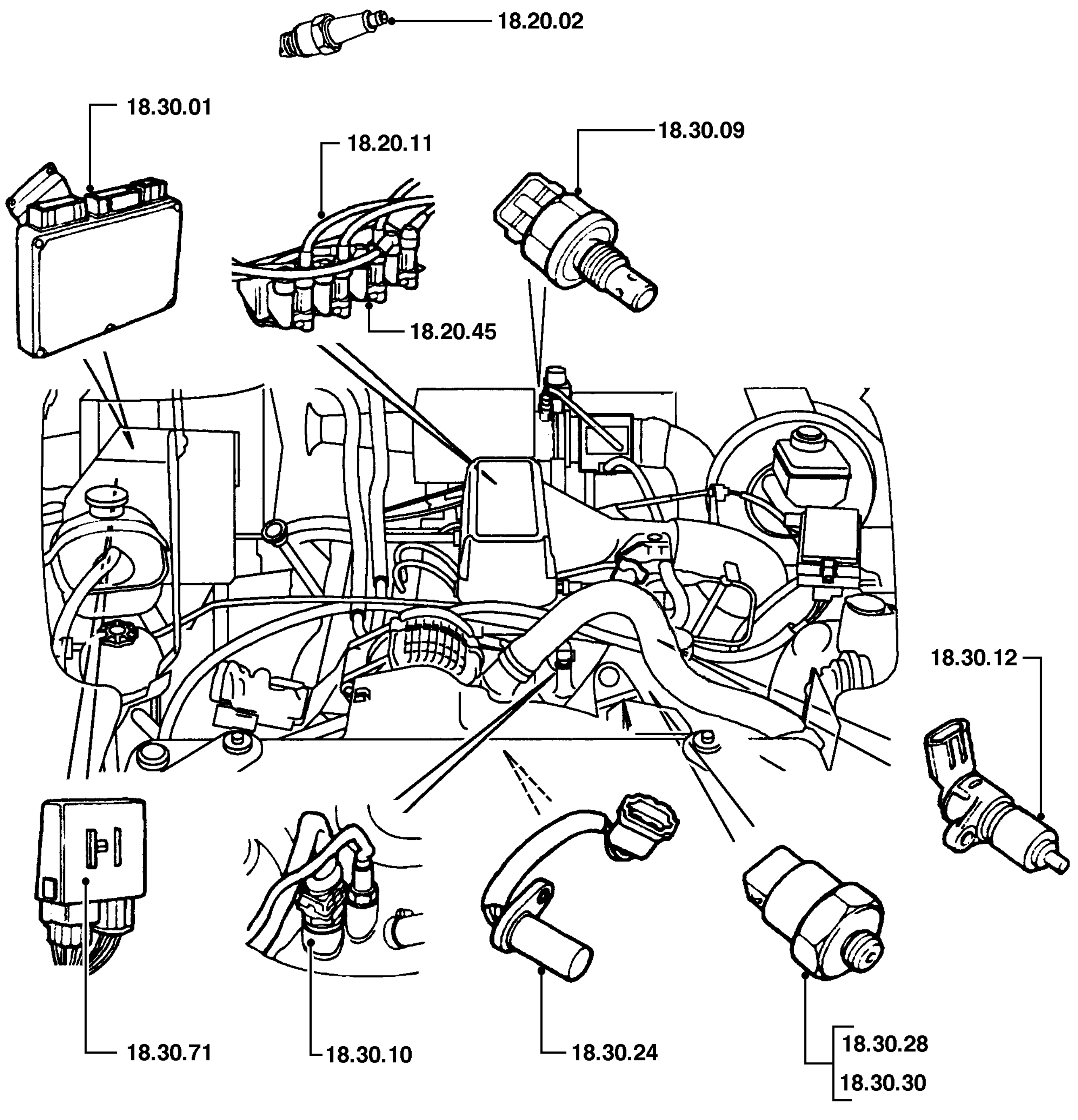



DRT53

| | | | |
|---|---|---|---|
| **18.20** | **IGNITION SYSTEM** | | |
| 18.20.02 | Spark plugs - replace (See normal wear limits) ............................ . | 00.70 | 7A9 |
| 18.20.11 | Wire - spark plug - engine set - replace. ...................................... . | 00.40 | 7B1 |
| 18.20.45 | Ignition coils - multiple - set - replace............................................ . | 00.70 | 7A8 |
| | | | |
| **18.30** | **SENSORS, SWITCHES, RELAYS & VALVES** | | |
| 18.30.01 | Engine control module (ECM) - combined ignition & fuel - replace . | 00.30 | 7G1 |
| 18.30.09 | Sensor - intake air temperature (IAT) - replace ............................ . | 00.20 | 2F6 |
| 18.30.10 | Sensor - engine coolant temperature (ECTS) - replace................ . | 00.30 | 7U3 |
| 18.30.12 | Sensor - crankshaft position (CKP) - replace................................ . | 00.40 | 7E7 |
| 18.30.24 | Sensor - camshaft position (CMP) - replace ................................ . | 00.30 | 7E8 |
| 18.30.28 | Sensor - knock(KS) - LH/each - replace ...................................... . | 00.40 | 7A0 |
| 18.30.30 | Sensor - knock (KS) - RH - replace .............................................. . | 00.40 | 7G4 |
| 18.30.71 | Relay module - replace ................................................................ . | 00.30 | 7W4 |

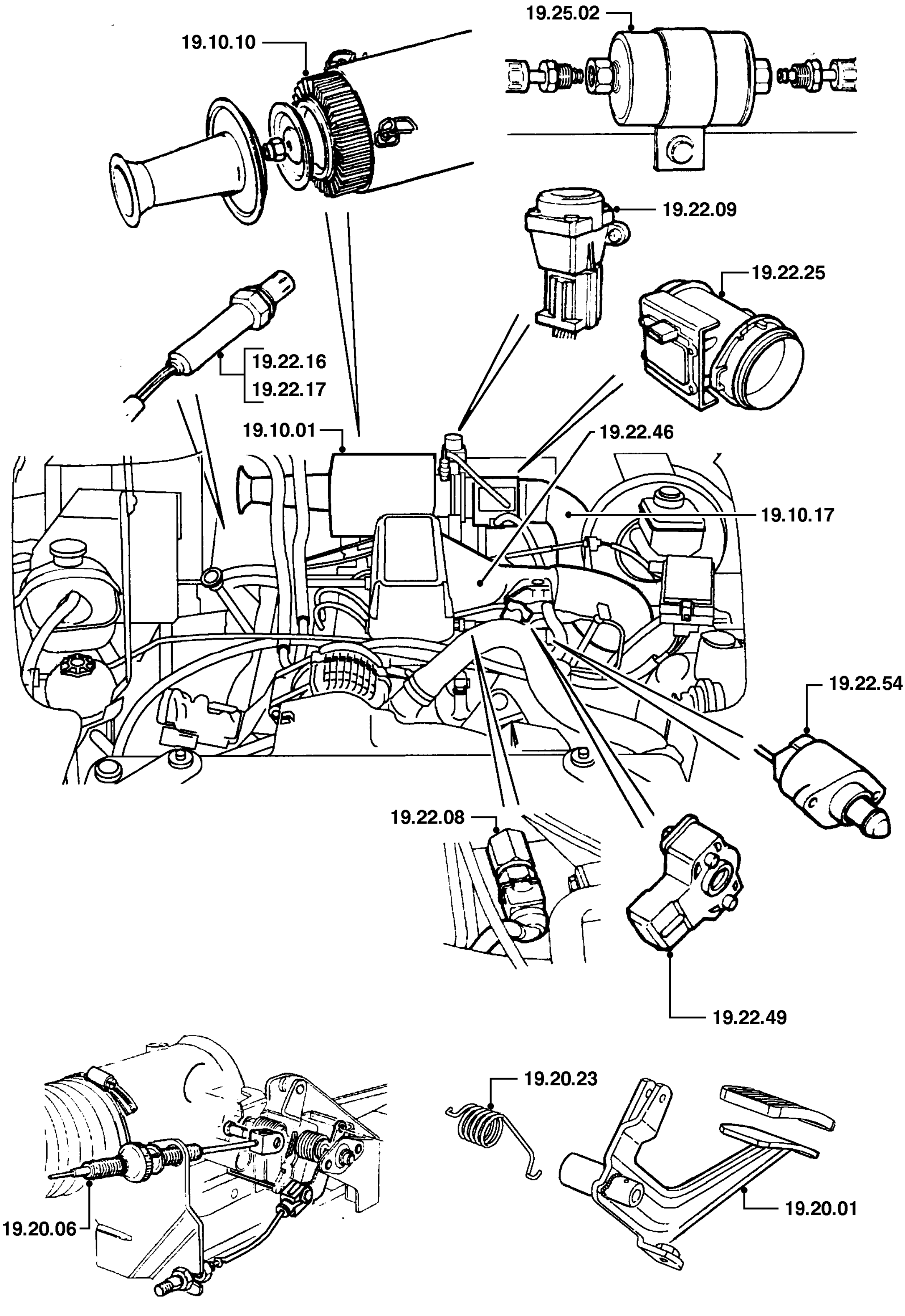
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|---|---|---|
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| **B - POROUS/ADRIFT** | **K - NOISY/CHAFED** | **T - SHORT CIRCUIT/THREAD DAMAGE** |
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| **D - BROKEN** | **M - BODY/COOLANT LEAKS/BURNT** | **V - BULB/LIGHT UNIT FAILURE** |
| **E - CRACKED/SPLIT/CUT** | **N - LEAKS - NOT COOLANT LOSS** | **W - VIBRATION/OUT OF BALANCE** |
| **F - SEIZED/STIFF** | **P - DIFFICULT ENGAGEMENT** | **X - BRAKE PULL/SURFACE DAMAGE** |
| **G - LOOSE/SEAK SYNCHROMESH** | **Q - FADED/STAINED/DISCOLOURED** | **Z - INOPERATIVE** |
| **H - CORRODED/PLATING FAILURE** | **R - FACTORY DAMAGE** | |


18.20.02
18.30.01
18.20.11
18.30.09
18.20.45
18.30.12
18.30.71
18.30.10
18.30.24
18.30.28
18.30.30

DRT34

| | | | |
|---|---|---|---|
| **19.10** | **AIR CLEANERS & HOSES** | | |
| 19.10.01 | Air cleaner(s) - replace ................................................................. . | 00.40 | 2F1 |
| 19.10.10 | Element - air cleaner - replace...................................................... . | 00.30 | 2F4 |
| 19.10.17 | Hose - intake - single - replace .................................................... . | 00.20 | 2F2 |
| **19.20** | **CONTROLS** | | |
| 19.20.01 | Pedal - throttle - replace .............................................................. . | 00.50 | 2K7 |
| 19.20.06 | Cable - throttle - replace .............................................................. . | 00.30 | 2K5 |
| 19.20.23 | Return spring - throttle pedal - replace. ........................................ . | 00.50 | 2K6 |
| **19.22** | **ELECTRONIC FUEL DISTRIBUTION EQUIPMENT** | | |
| 19.22.08 | Sensor - engine fuel temperature (EFTS) - replace...................... . | 00.20 | 7G9 |
| 19.22.09 | Switch - inertia - fuel cut off - replace........................................... . | 00.20 | 6P2 |
| 19.22.16 | Sensor - heated oxygen (HO2S) - front/LH/each - replace .......... . | 00.30 | 2T6 |
| 19.22.17 | Sensor - heated oxygen (H02S) - rear/RH - replace .................... . | 00.30 | 2T5 |
| 19.22.25 | Sensor - mass air flow (MAFS) - replace...................................... . | 00.20 | 7W2 |
| 19.22.46 | Plenum chamber - replace............................................................ . | 01.10 | 2R5 |
| 19.22.49 | Sensor - throttle position (TPS) - replace (includes adjust). ........ . | 00.20 | 7G5 |
| 19.22.54 | Valve - (IACV)idle air control (stepper motor) - replace ................ . | 00.30 | 7W1 |
| **19.25** | **FUEL FILTERS** | | |
| 19.25.02 | Filter - main - replace.................................................................... . | 00.30 | 2R3 |

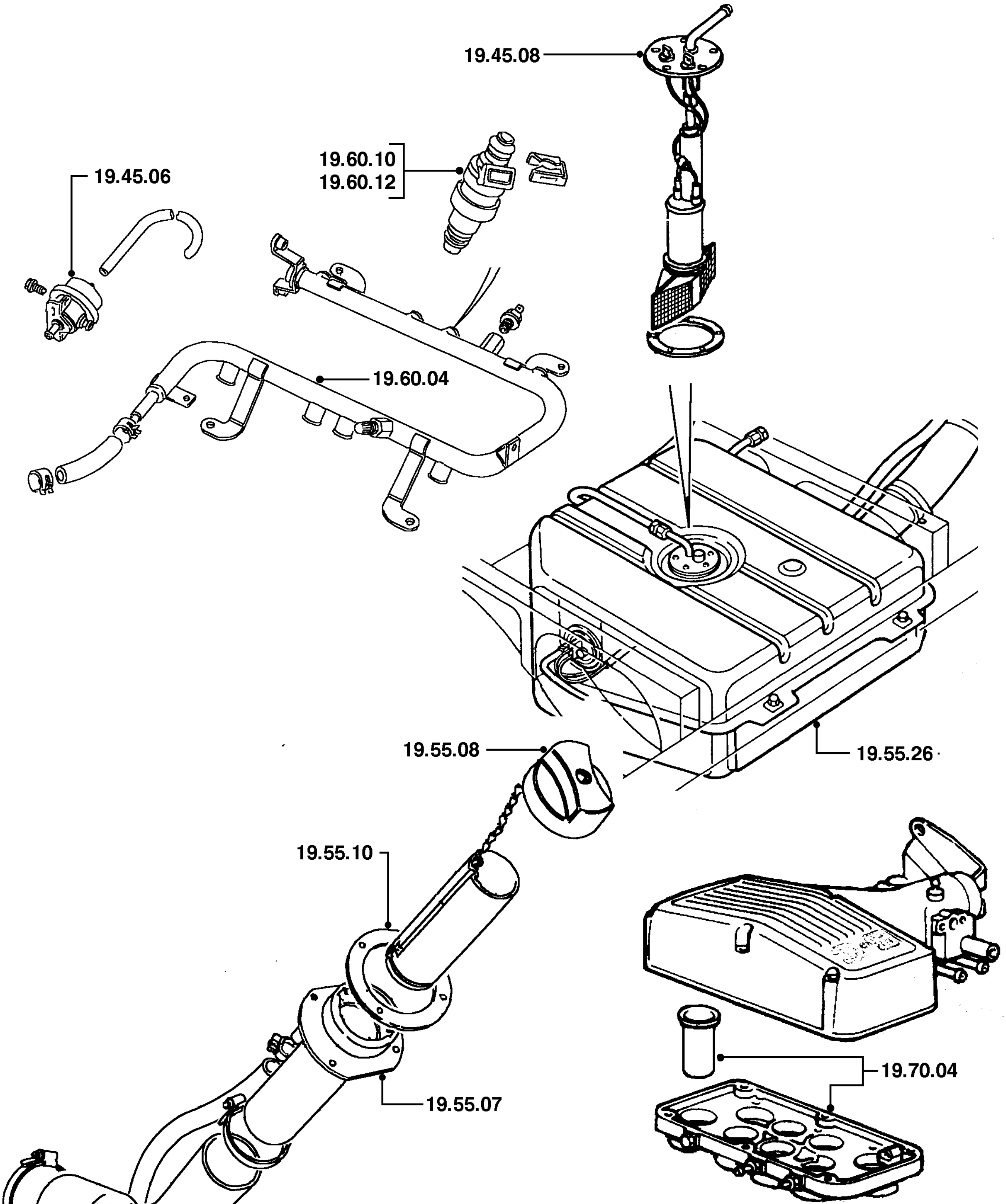
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19.25.02
19.10.10
19.22.09
19.22.25
19.22.16
19.22.17
19.10.01
19.22.46
19.10.17
19.22.54
19.22.08
19.22.49
19.20.23
19.20.06
19.20.01

DRT35

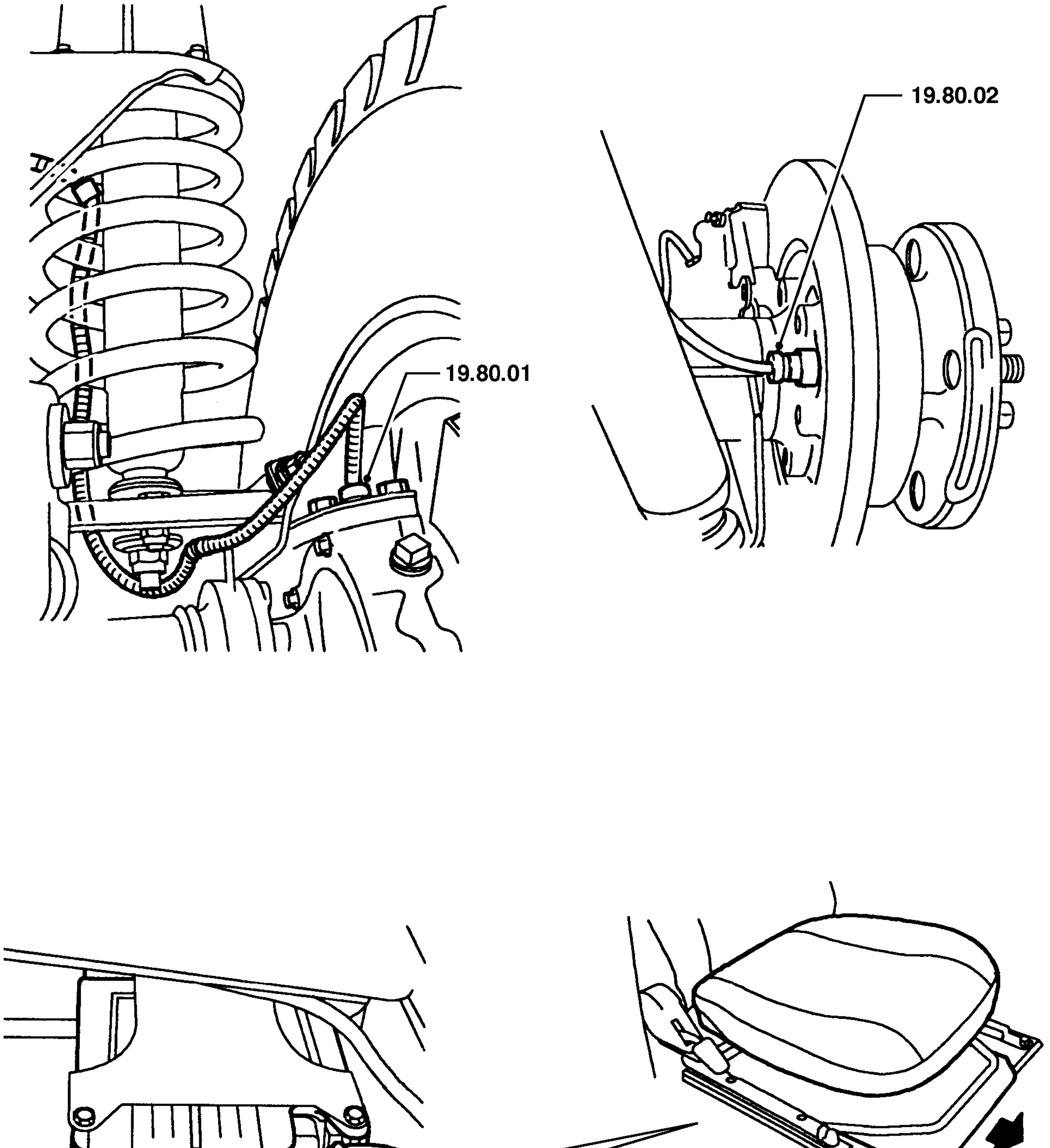
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| **19.45** | **FUEL PUMP** | | |
| 19.45.06 | Regulator - pressure - replace. | 00.70 | 2R6 |
| 19.45.08 | Pump - replace | 01.40 | 7F9 |
| **19.50** | **FUEL SYSTEM** | | |
| 19.50.02 | Fuel system - depressurise | 00.20 | * |
| **19.55** | **FUEL TANK** | | |
| 19.55.02 | Tank - drain fuel | 00.40 | * |
| 19.55.07 | Filler neck - replace | 00.50 | 2Q0 |
| 19.55.08 | Cap - fuel filler - replace | 00.10 | 9M3 |
| 19.55.10 | Sealing ring - fuel filler cap - replace | 00.20 | |
| 19.55.12 | Hose - filler neck to tank - replace | 00.50 | 2Q0 |
| 19.55.26 | Tank - fuel - rear - replace | 01.50 | 2Q8 |
| **19.60** | **INJECTORS** | | |
| 19.60.04 | Fuel rail - replace | 02.50 | 2N5 |
| 19.60.10 | Injector - one only - replace | 01.80 | 2P2 |
| 19.60.12 | Injectors - set - replace | 02.30 | 2P2 |
| **19.70** | **VENTURI/AIR INTAKE** | | |
| 19.70.04 | Housing - assembly - ram pipe - replace | 01.10 | |

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19.45.08
19.60.10
19.60.12
19.45.06
19.60.04
19.55.08
19.55.26
19.55.10
19.70.04
19.55.07
19.55.12
DRT36

| | | | |
|---|---|---|---|
| **19.80** | **ROUGH ROAD DETECTION SYSTEM** | | |
| 19.80.01 | Sensor - wheel speed - front - each - replace ............................. . | 00.90 | |
| 19.80.02 | Sensor - wheel speed - rear - each - replace................................ . | 00.90 | |
| 19.80.03 | Electronic Control Module (ECM) - replace .................................. . | 00.30 | |
| **19.90** | **DIAGNOSIS (Operations are based on the procedures in the shop manual, trouble shooting manuals and/or using TestBook)** | | |
| 19.90.06/01 | Fuel system pressure - test .......................................................... . | 00.50 | * |

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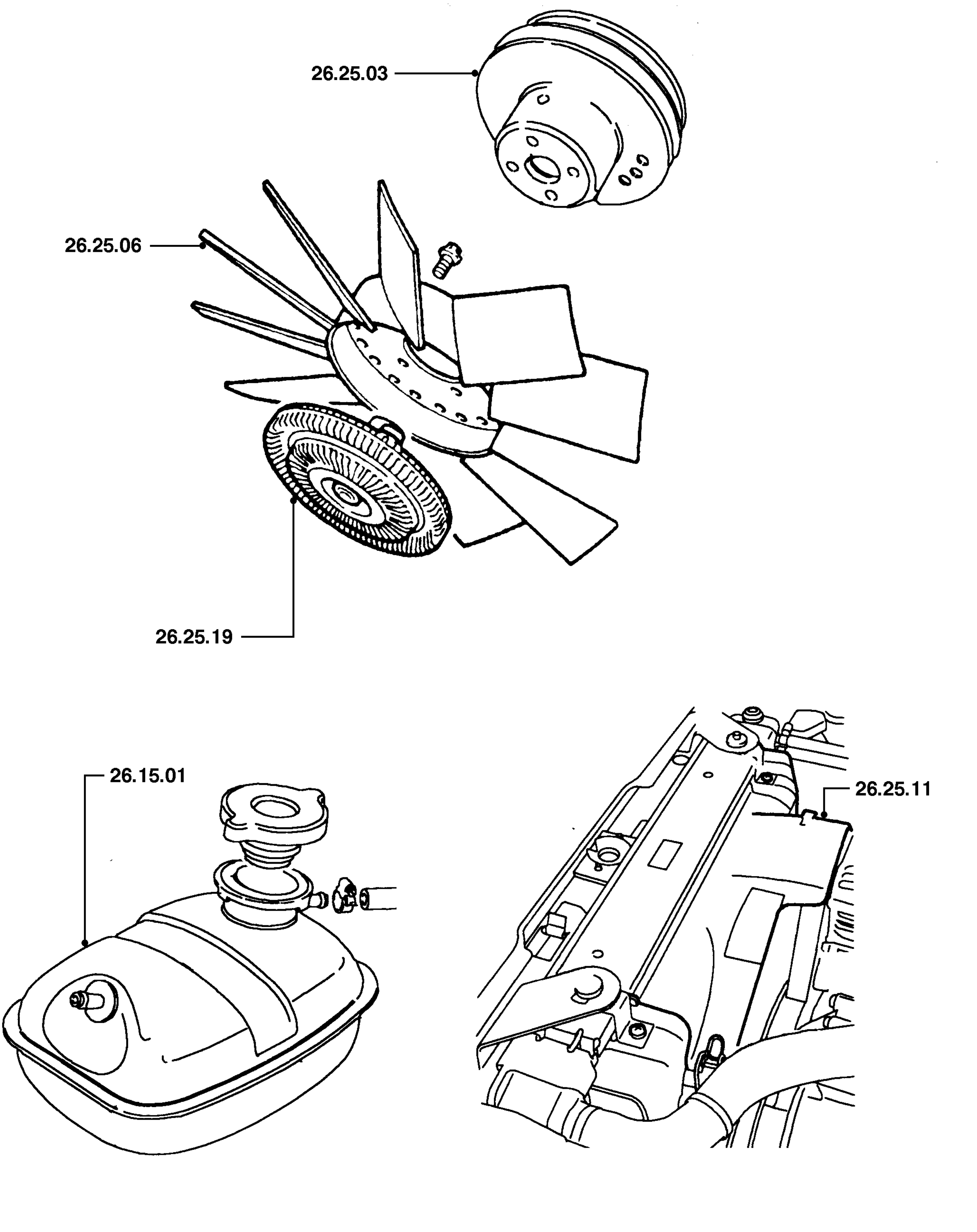



DRT54

(Operations include drain, refill, bleed system and pressure test where necessary)

| | | | |
|---|---|---|---|
| **26.10** | **COOLANT & SYSTEM** | | |
| 26.10.01 | Cooling system drain, flush and refill .............................................. . | 00.80 | - |
| 26.10.07 | System - pressure test.................................................................... . | 00.30 | - |
| **26.15** | **EXPANSION TANKS** | | |
| 26.15.01 | Tank - replace ................................................................................. . | 00.30 | 2C7 |
| **26.25** | **FANS** | | |
| 26.25.03 | Pulley - water pump - replace ........................................................ . | 00.70 | 2H8 |
| 26.25.06 | Fan blades - LH/single - replace .................................................... . | 00.40 | 2C1 |
| 26.25.11 | Cowl/shroud - fan - replace ............................................................ . | 00.30 | 2C1 |
| 26.25.19 | Coupling unit - viscous fan - replace ............................................. . | 00.40 | 2C2 |

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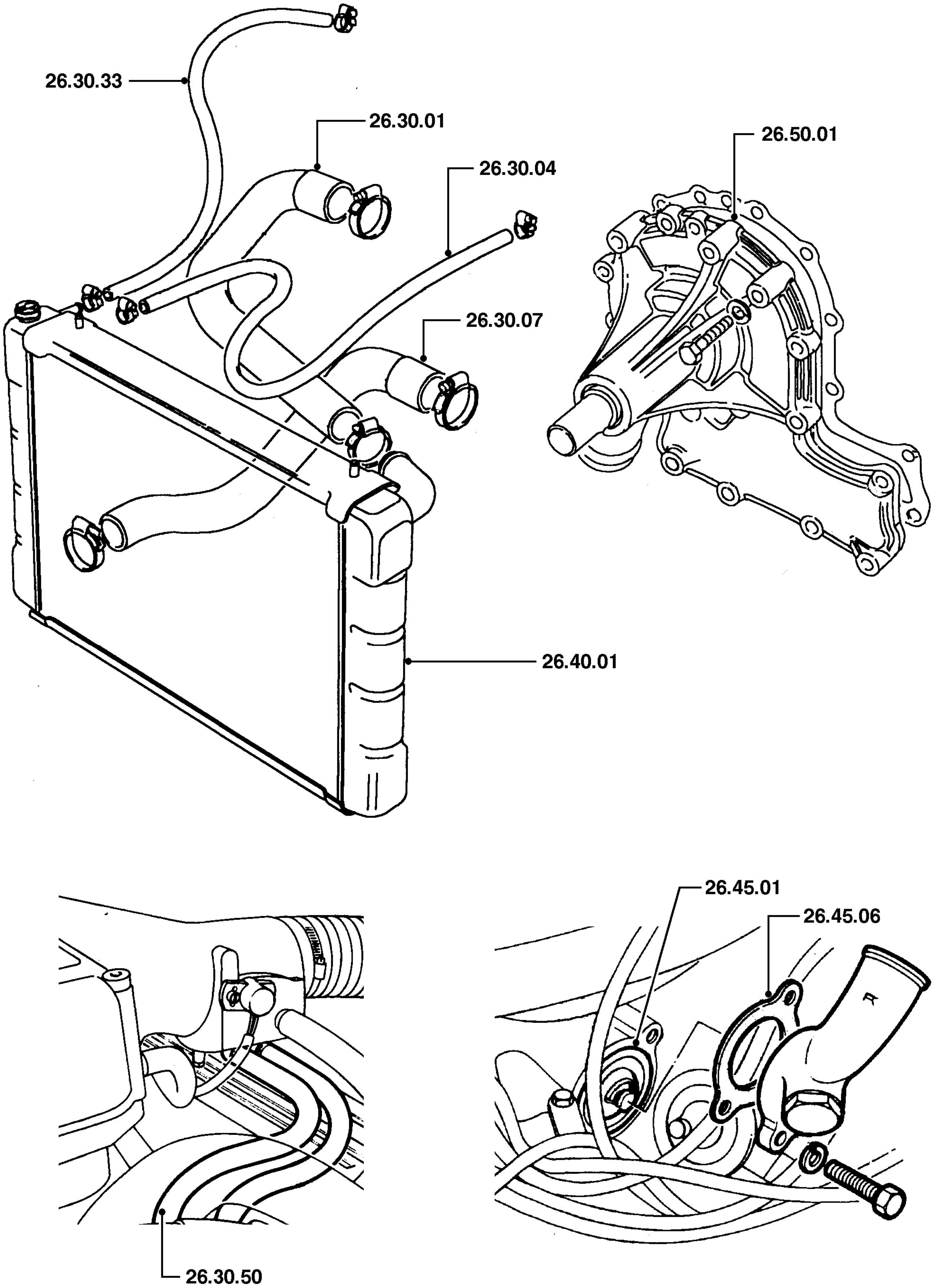



DRT37

(Operations include drain, refill, bleed system and pressure test where necessary)

| | | | |
|---|---|---|---|
| **26.30** | **HOSES & PIPES** | | |
| 26.30.01 | Hose - top - radiator - replace ...................................................... . | 00.30 | 2E1 |
| 26.30.04 | Hose - radiator to throttle housing - replace................................. . | 00.90 | 2E9 |
| 26.30.07 | Hose - bottom - radiator - replace ............................................... . | 01.10 | 2E2 |
| 26.30.29 | Hose - manifold to heater pipe - replace...................................... . | 00.20 | 2E4 |
| 26.30.30 | Hose - manifold to heater valve/heater - replace.......................... . | 00.20 | 2E4 |
| 26.30.33 | Hose - radiator to expansion tank - replace.................................. . | 00.20 | 2E6 |
| 26.30.44 | Hose - heater to return pipe - replace .......................................... . | 00.20 | 2E5 |
| 26.30.50 | Hose - manifold to throttle housing - replace ................................ . | 00.90 | 2E9 |
| **26.40** | **RADIATOR** | | |
| 26.40.01 | Radiator assembly - replace ....................................................... . | 01.50 | 2C5 |
| **26.45** | **THERMOSTAT** | | |
| 26.45.01 | Thermostat - replace.................................................................... . | 00.90 | 2C4 |
| 26.45.06 | Gasket - thermostat housing - LH/single - replace....................... . | 00.90 | 2U8 |
| 26.45.09 | Thermostat - test - includes install new thermostat if necessary .. . | 01.10 | 2C4 |
| **26.50** | **WATER PUMP** | | |
| 26.50.01 | Pump - water - replace ................................................................ . | 01.10 | 2C3 |

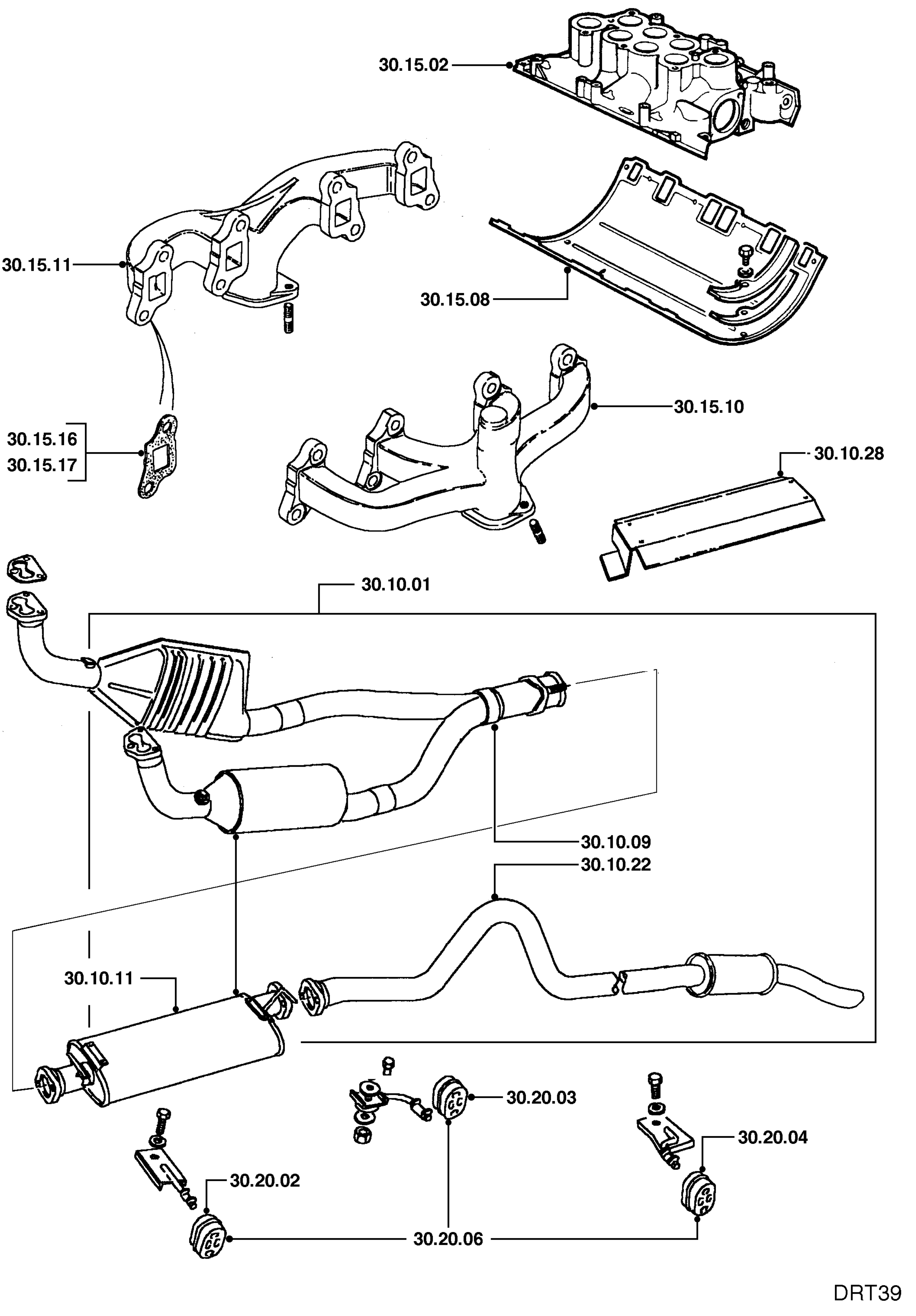
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26.30.33
26.30.01
26.30.04
26.30.07
26.40.01
26.50.01
26.45.01
26.45.06
26.30.50

DRT38

| | | | |
|---|---|---|---|
| **30.10** | **EXHAUST SYSTEM (See 17.50 for three way catalyst)** | | |
| 30.10.01 | Exhaust system - replace ........................................................... . | 01.20 | * |
| 30.10.09 | Front pipe - replace....................................................................... . | 01.20 | 2S3 |
| 30.10.11 | Intermediate pipe &/or muffler - replace. ...................................... . | 00.50 | 2S5 |
| 30.10.22 | Tail pipe & muffler - replace.......................................................... . | 00.40 | 2S9 |
| 30.10.28 | Heat shield - front pipe - replace .................................................. . | 00.20 | 2T2 |
| **30.15** | **MANIFOLDS** | | |
| 30.15.02 | Manifold - air intake - LH/front/single - replace ............................ . | 02.60 | 2S1 |
| 30.15.08 | Gasket(s) - air intake manifold - LH/each - replace ...................... . | 02.60 | 2U1 |
| 30.15.08/01 | Gasket(s) - air intake manifold - LH/each - replace - with engine . removed........................................................................................ | 00.60 | 2U1 |
| 30.15.10 | Manifold - exhaust - LH/front/single - replace .............................. . | 01.20 | 2S1 |
| 30.15.11 | Manifold - exhaust - RH/rear - replace......................................... . | 01.10 | 2S1 |
| 30.15.16 | Gasket(s) - exhaust manifold - RH/rear - replace ........................ . | 01.10 | 2U3 |
| 30.15.16/01 | Gasket(s) - exhaust manifold - RH/rear - replace - engine removed | 00.30 | 2U3 |
| 30.15.17 | Gasket(s) - exhaust manifold - LH/front/single - replace .............. . | 01.20 | 2U3 |
| 30.15.17/01 | Gasket(s) - exhaust manifold - LH/front/single - replace - engine . removed........................................................................................ | 00.30 | 2U3 |
| **30.20** | **MOUNTINGS** | | |
| 30.20.02 | Mounting rubber - front - replace .................................................. . | 00.10 | 2T1 |
| 30.20.03 | Mounting rubber - center - replace .............................................. . | 00.20 | 2T1 |
| 30.20.04 | Mounting rubber - rear - each - replace ........................................ . | 00.20 | 2T7 |
| 30.20.06 | Mountings - set - replace ............................................................. . | 00.30 | 2T1 |

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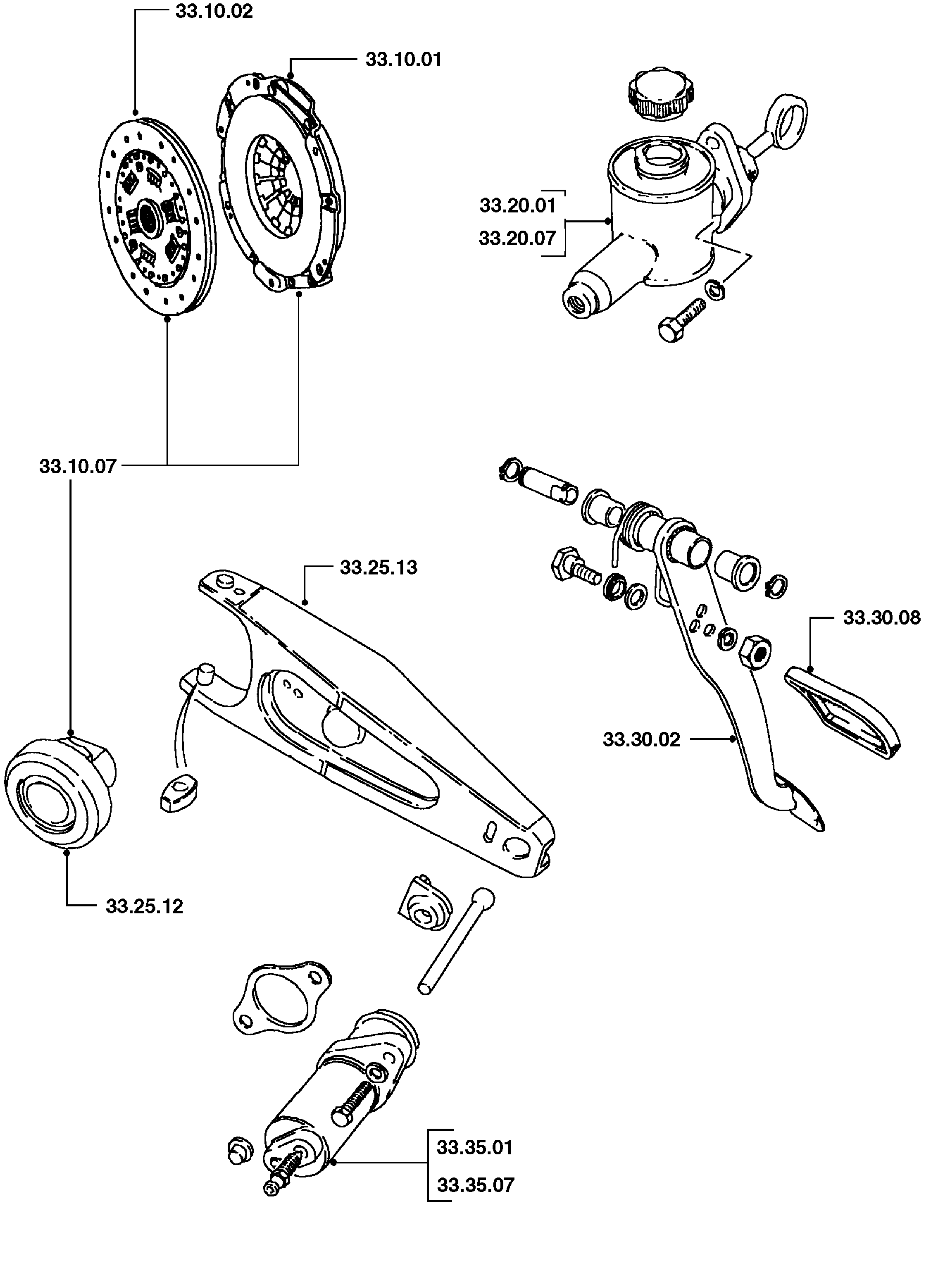
30.15.02
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30.10.01
30.10.09
30.10.22
30.10.11
30.20.03
30.20.04
30.20.02
30.20.06


DRT39

(Operations include bleeding hydraulic system where necessary)

| | | | |
|---|---|---|---|
| **33.10** | **CLUTCH ASSEMBLY** | | |
| 33.10.01 | Clutch assembly - replace ............................................................. | 05.70 | * |
| 33.10.01/01 | Clutch assembly - replace - transmission removed ...................... | 00.20 | * |
| 33.10.02 | Clutch disc - replace ...................................................................... | 05.70 | 3A2 |
| 33.10.07 | Pressure plate, clutch disc & throw out bearing - replace ............ | 05.75 | * |
| **33.15** | **HYDRAULIC SYSTEM** | | |
| 33.15.01 | Hydraulic system - bleed ................................................................ | 00.20 | * |
| **33.20** | **MASTER CYLINDER** | | |
| 33.20.01 | Cylinder - master - replace ............................................................. | 01.55 | 3B4 |
| 33.20.07 | Cylinder - master - overhaul .......................................................... | 01.75 | 3B4 |
| **33.25** | **MECHANICAL LINKAGE & RELEASE** | | |
| 33.25.12 | Bearing - throw out - replace .......................................................... | 04.70 | 3A3 |
| 33.25.13 | Arm - clutch throw out - replace ...................................................... | 04.80 | 3A6 |
| **33.30** | **PEDAL ASSEMBLIES** | | |
| 33.30.02 | Pedal - clutch - replace ................................................................... | 01.75 | 3B6 |
| 33.30.08 | Pad cover - clutch pedal - replace .................................................. | 00.25 | 3B6 |
| **33.35** | **SLAVE CYLINDER** | | |
| 33.35.01 | Cylinder - slave - replace ................................................................ | 00.45 | 3B5 |
| 33.35.07 | Cylinder - slave - overhaul ............................................................. | 00.55 | 3B5 |

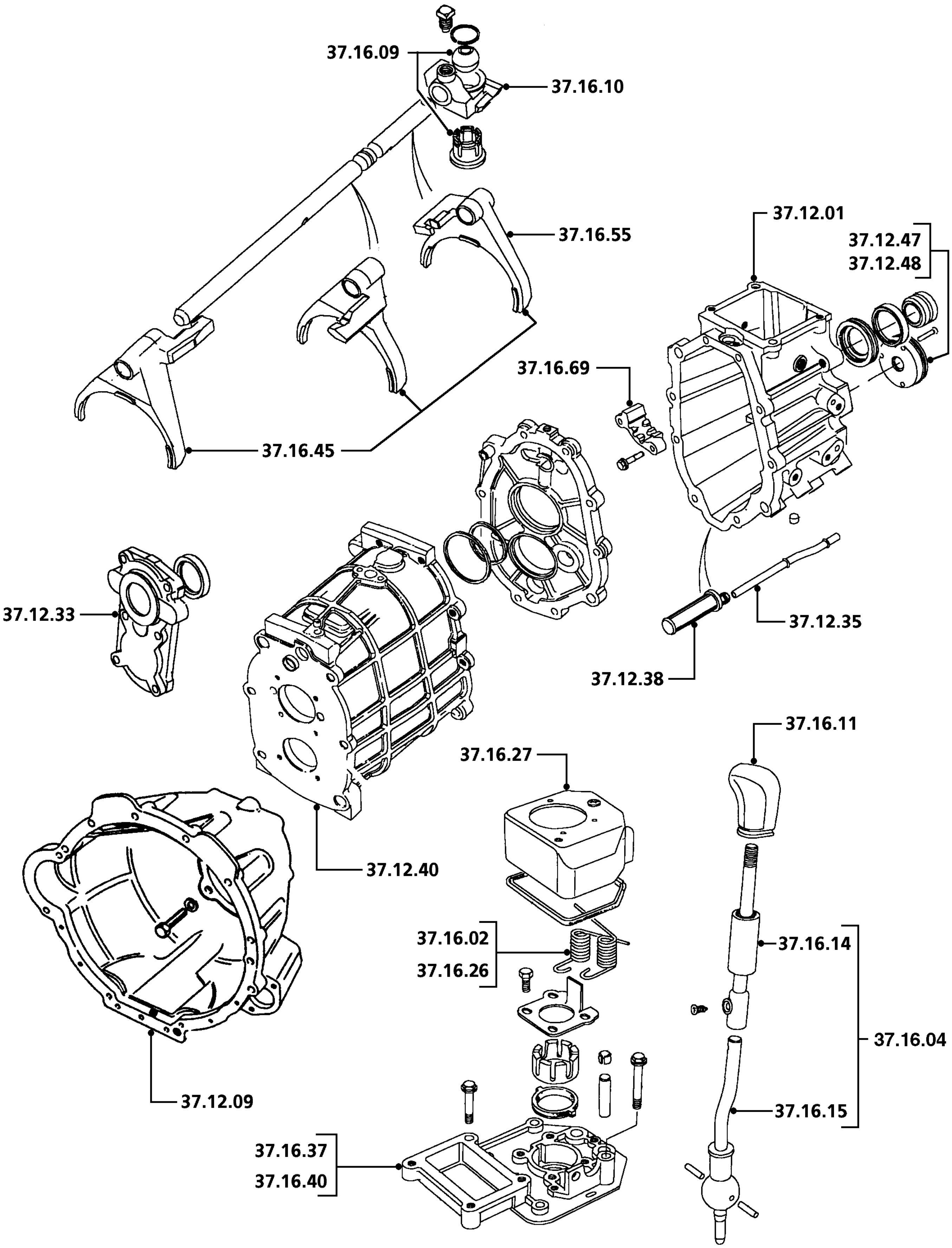
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33.10.02
33.10.01
33.20.01
33.20.07
33.10.07
33.25.13
33.30.08
33.30.02
33.25.12
33.35.01
33.35.07

DRT83

| | | | |
|---|---|---|---|
| **37.12** | **COVERS, CASE & EXTENSIONS** | | |
| 37.12.01 | Extension - rear - replace ................................................ . | 06.75 | 3D8 |
| 37.12.01/01 | Extension - rear - remove, reseal & reinstall (includes replace oil seal)........................................................................... | 07.85 | * |
| 37.12.07 | Housing - clutch/bell - replace ........................................... . | 06.00 | 3D2 |
| 37.12.09 | Cover - bottom - replace ................................................. . | 00.50 | 3D3 |
| 37.12.33 | Cover - front - replace ................................................... . | 06.25 | 3D2 |
| 37.12.33/01 | Cover - front - remove, reseal & reinstall (includes replace oil seal) | 06.20 | 3D2 |
| 37.12.35 | Pipe - oil pump feed - replace............................................ . | 07.85 | 3F2 |
| 37.12.38 | Filter - transmission oil - replace ..................................... . | 06.75 | |
| 37.12.40 | Main case - replace ........................................................ . | 06.95 | 3D1 |
| 37.12.41 | Main case - reseal or replace gasket.................................. . | 06.95 | 3D1 |
| 37.12.47 | Pump - oil - replace.......................................................... . | 06.95 | 3H0 |
| 37.12.48 | Pump - oil - overhaul ....................................................... . | 08.15 | 3H0 |
| **37.16** | **GEARSHIFT, CONTROLS & SELECTORS** | | |
| 37.16.02 | Bias spring - gear shift lever - replace. .............................. . | 01.60 | 3J9 |
| 37.16.04 | Lever - gear shift - replace................................................ . | 01.75 | 3J1 |
| 37.16.09 | Ball socket - gear shift lever - replace................................. . | 01.80 | 3J2 |
| 37.16.10 | Yoke assembly - selector shaft - replace. ........................... . | 01.70 | 3J8 |
| 37.16.11 | Knob - gear shift lever - replace......................................... . | 00.30 | 3J1 |
| 37.16.14 | Lever - upper - gear shift - replace .................................... . | 00.30 | 3J1 |
| 37.16.15 | Lever - lower - gear shift - replace ..................................... . | 01.75 | 3J1 |
| 37.16.26 | Bias spring - gear shift lever - adjust ................................. . | 01.50 | 3J9 |
| 37.16.27 | Cover - bias spring - replace ............................................ . | 01.40 | 3J9 |
| 37.16.29 | Gasket - selector mechanism housing - replace .................. . | 01.80 | 3R9 |
| 37.16.37 | Mechanism & housing - gear selector - replace.................... . | 02.00 | * |
| 37.16.37/01 | Housing - gear selector mechanism - remove, reseal & reinstall.. . | 01.65 | * |
| 37.16.40 | Mechanism & housing - gear selector - overhaul.................. . | 02.00 | * |
| 37.16.45 | Forks - selector shaft - replace ......................................... . | 08.35 | 3M5 |
| 37.16.55 | Selector fork - 5th/reverse speed - replace ......................... . | 07.55 | 3M3 |
| 37.16.69 | Gate - selector - replace .................................................. . | 06.85 | |
| 37.16.73 | Stop/cam - reverse gear - replace ...................................... . | 01.85 | |

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**X - BRAKE PULL/SURFACE DAMAGE**
**Z - INOPERATIVE**

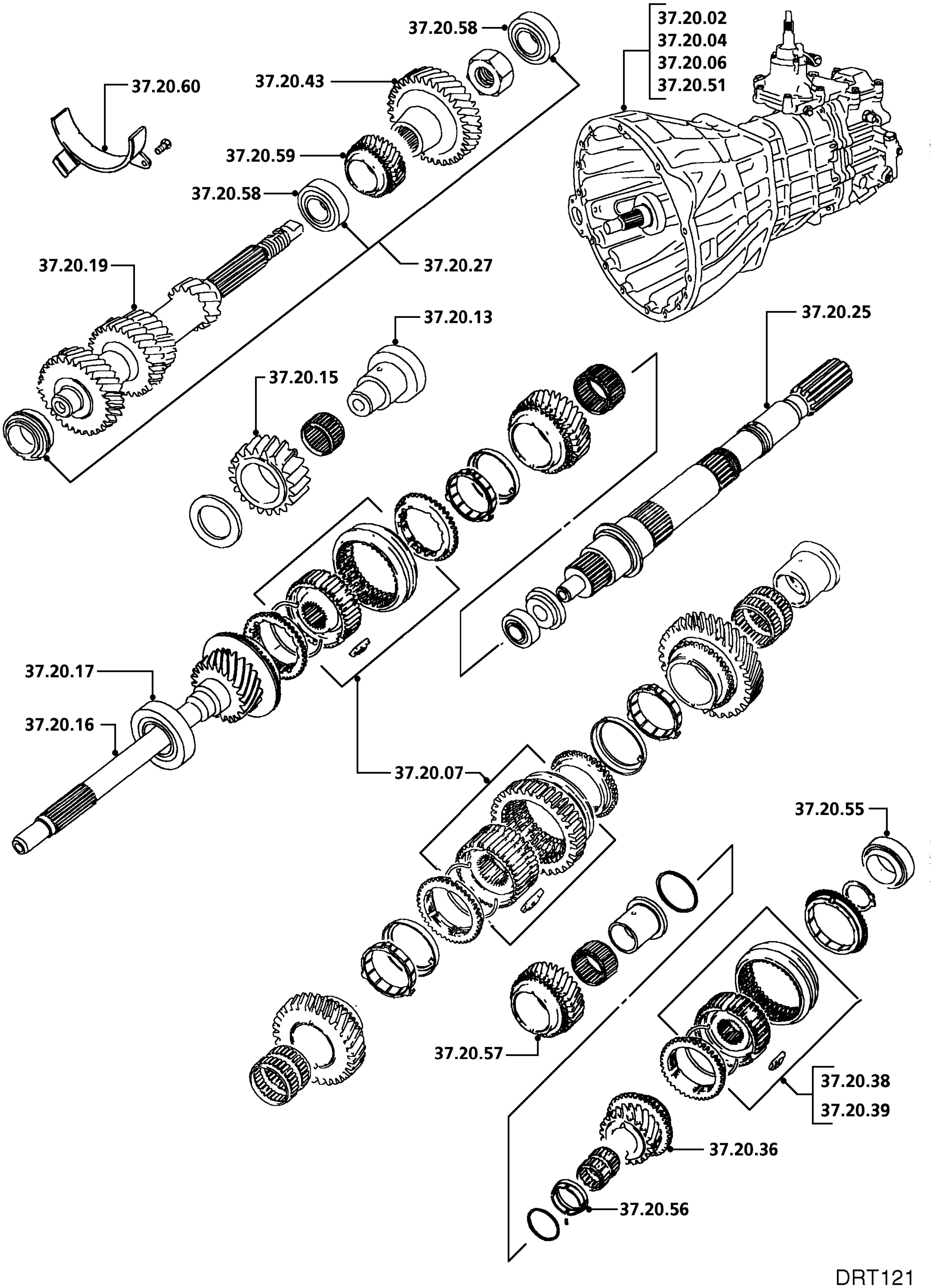


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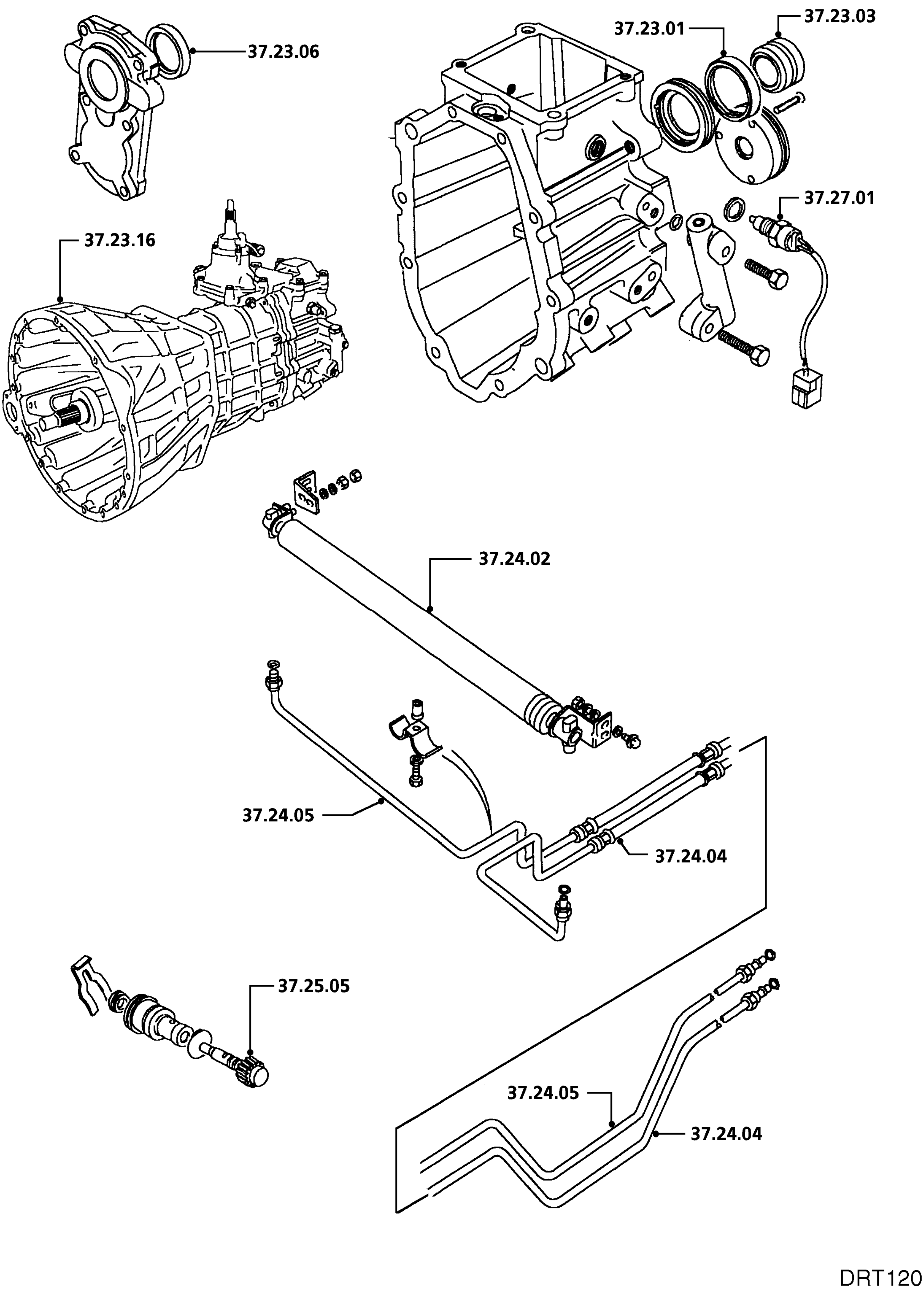
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| **37.20** | **TRANSMISSION ASSEMBLY** | | |
| 37.20.02 | Transmission - replace | 06.05 | * |
| 37.20.02/99 | Transmission - remove for access & reinstall | 04.50 | * |
| 37.20.04 | Transmission assembly - overhaul - includes final drive | 10.00 | * |
| 37.20.06 | Transmission assembly - overhaul (includes transfer gearbox). | 20.60 | * |
| 37.20.07 | Synchronizer assemblies - replace | 08.75 | * |
| 37.20.13 | Shaft - reverse idler gear - replace | 08.65 | 3H4 |
| 37.20.15 | Gear - reverse idler - replace. | 08.65 | 3C1 |
| 37.20.16 | Shaft - input - replace | 08.55 | 3H1 |
| 37.20.17 | Bearing(s) - input shaft - replace | 08.55 | 3H5 |
| 37.20.19 | Countershaft - replace | 08.65 | 3H3 |
| 37.20.23 | Synchronizer assembly - 3rd/4th gear - replace | 08.75 | |
| 37.20.25 | Shaft - output - replace | 08.75 | 3H2 |
| 37.20.27 | Bearings - countershaft - replace | 08.65 | 3H7 |
| 37.20.36 | Gear(s) - 5th speed - replace | 07.55 | 3E6 |
| 37.20.38 | Synchronizer assembly - 5th/reverse - replace | 08.75 | 3C5 |
| 37.20.39 | Synchronizer assembly 5th/reverse - overhaul | 08.80 | 3G5 |
| 37.20.43 | 5th gear - layshaft - replace | 08.35 | 3H3 |
| 37.20.49 | Synchronizer - 1st/2nd speed - replace | 08.55 | * |
| 37.20.51 | Main transmission and transfer gearbox assembly - replace | 06.30 | * |
| 37.20.55 | Bearing - main shaft rear support - replace | 08.35 | 3H6 |
| 37.20.56 | Retaining collars - mainshaft - 5th gear - replace. | 08.05 | |
| 37.20.57 | Reverse gear - mainshaft - replace | 08.80 | 3E7 |
| 37.20.58 | Bearing - layshaft rear support - replace | 08.25 | 3H7 |
| 37.20.59 | Reverse gear - layshaft - replace | 08.75 | 3E7 |
| 37.20.60 | Baffle plate - reverse gear - replace | 07.90 | |

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37.20.58
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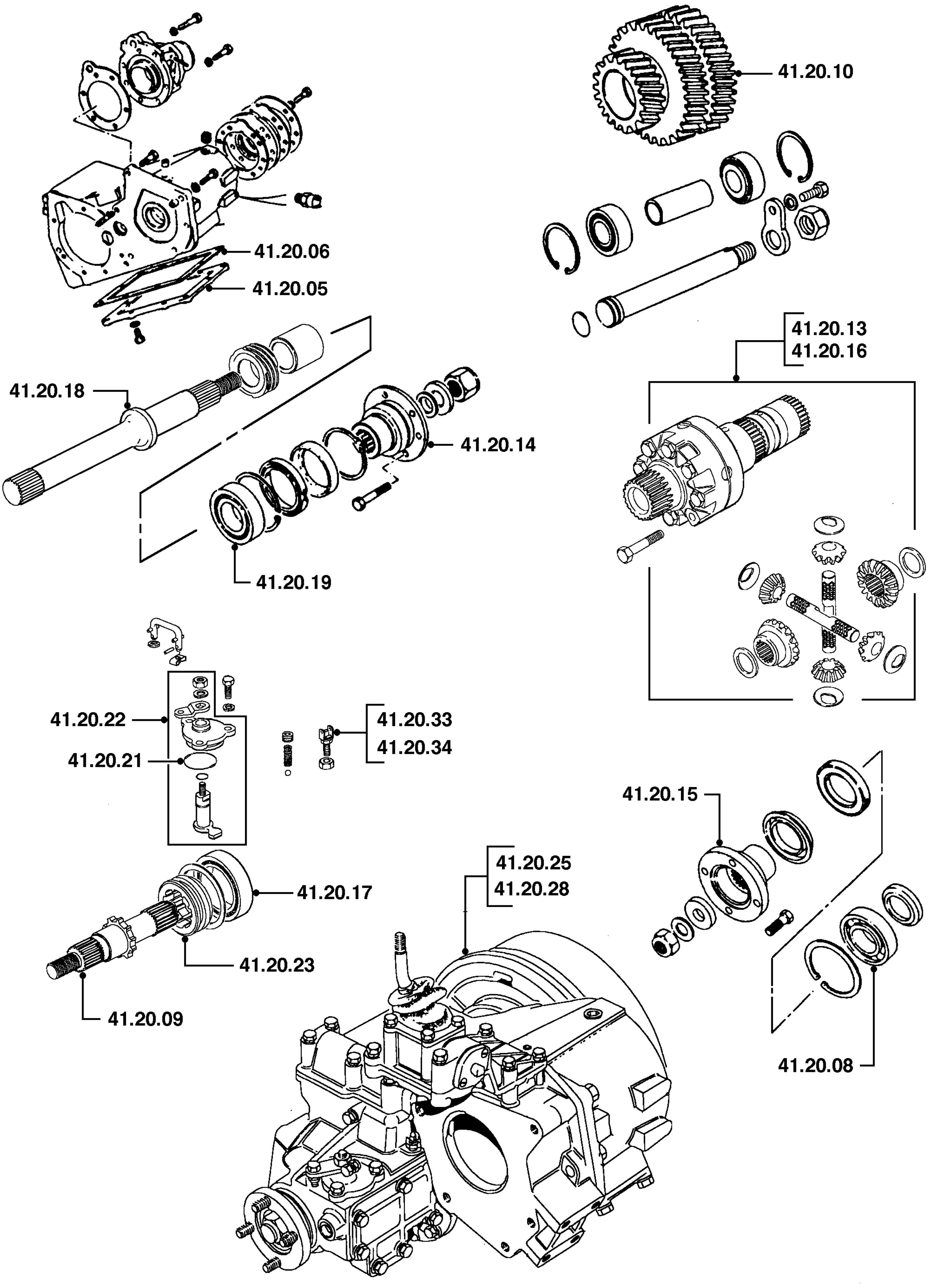
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| **37.23** | **OIL SEALS** | | |
| 37.23.01 | Oil seal - output shaft - replace | 06.05 | 3R7 |
| 37.23.01/01 | Oil seal - output shaft - replace - transfer gearbox removed | 00.20 | 3R7 |
| 37.23.03 | Collar - oil seal - mainshaft - replace | 05.25 | 3S3 |
| 37.23.06 | Oil seal - input shaft - replace | 06.25 | 3R6 |
| 37.23.06/01 | Oil seal - input shaft - replace - transmission removed | 00.40 | 3R6 |
| 37.23.16 | Transmission - reseal, fit new oil seals and 'O' ring(s) | 11.25 | * |
| 37.23.16/01 | Transmission - reseal, fit new oil seals and 'O' ring(s) - transmission removed | 03.00 | * |
| **37.24** | **LUBRICATION** | | |
| 37.24.02 | Cooler - transmission oil/fluid - replace | 00.45 | * |
| 37.24.03 | Pipe/hose - oil/fluid cooler feed - radiator to front oil cooler - replace | 01.55 | 3F2 |
| 37.24.04 | Pipe/hose - oil/fluid cooler return - from front oil cooler - replace | 01.55 | 3F2 |
| 37.24.05 | Pipe/hose - oil/fluid cooler feed - transmission to radiator - replace | 00.95 | 3F2 |
| 37.24.06 | Pipe/hose - oil/fluid cooler return - to transmission - replace | 00.95 | 3F2 |
| 37.24.07 | Thermostat - transmission oil cooler - replace | 01.20 | 3S9 |
| 37.24.08 | Seals - thermostat housing - transmission oil cooler - replace | 01.15 | 3Z7 |
| **37.25** | **SPEEDOMETER DRIVE** | | |
| 37.25.05 | Pinion - speedometer drive - replace | 00.35 | 3E9 |
| **37.27** | **SWITCHES** | | |
| 37.27.01 | Switch - back-up light - replace | 01.00 | 7H1 |
| 37.27.03 | Switch - hi-lo warning - replace | 00.80 | 3T9 |

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37.23.06
37.23.01
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37.24.04
DRT120

| | | | |
|---|---|---|---|
| **41.20** | **TRANSFER GEARBOX** | | |
| 41.20.05 | Bottom cover - transfer gearbox - replace ..................................... | 00.60 | |
| 41.20.06 | Gasket - bottom cover - transfer gearbox - replace. .................... . | 00.60 | |
| 41.20.08 | Bearing - front output shaft - replace ............................................ . | 05.00 | 3N3 |
| 41.20.09 | Output shaft - front - replace.......................................................... | 05.00 | 3H2 |
| 41.20.10 | Intermediate gear assembly - replace .......................................... . | 06.70 | |
| 41.20.13 | Differential assembly - replace ..................................................... . | 08.60 | 3L9 |
| 41.20.14 | Drive flange - rear output shaft - replace ...................................... . | 00.90 | 3N5 |
| 41.20.15 | Drive flange - front output shaft - replace...................................... . | 00.70 | 3N5 |
| 41.20.16 | Differential assembly - overhaul .................................................. . | 09.90 | 3L9 |
| 41.20.17 | Bearings - differential assembly - replace .................................... . | 08.60 | |
| 41.20.18 | Output shaft - rear - replace............................................................ . | 01.40 | 3N2 |
| 41.20.19 | Bearing - rear output shaft - replace ............................................ . | 01.40 | 3N2 |
| 41.20.21 | Intermediate shaft rear bearing - replace...................................... . | 01.00 | 3N1 |
| 41.20.22 | Gear - drive - intermediate shaft - replace .................................... . | 01.00 | |
| 41.20.23 | Dog clutch - differential lock - replace........................................... . | 04.70 | 3L8 |
| 41.20.25 | Transfer gearbox - replace ......................................................... . | 05.10 | * |
| 41.20.25/99 | Transfer gearbox - remove for access & reinstall ........................ . | 05.30 | * |
| 41.20.28 | Transfer gearbox - overhaul ........................................................ . | 12.30 | * |

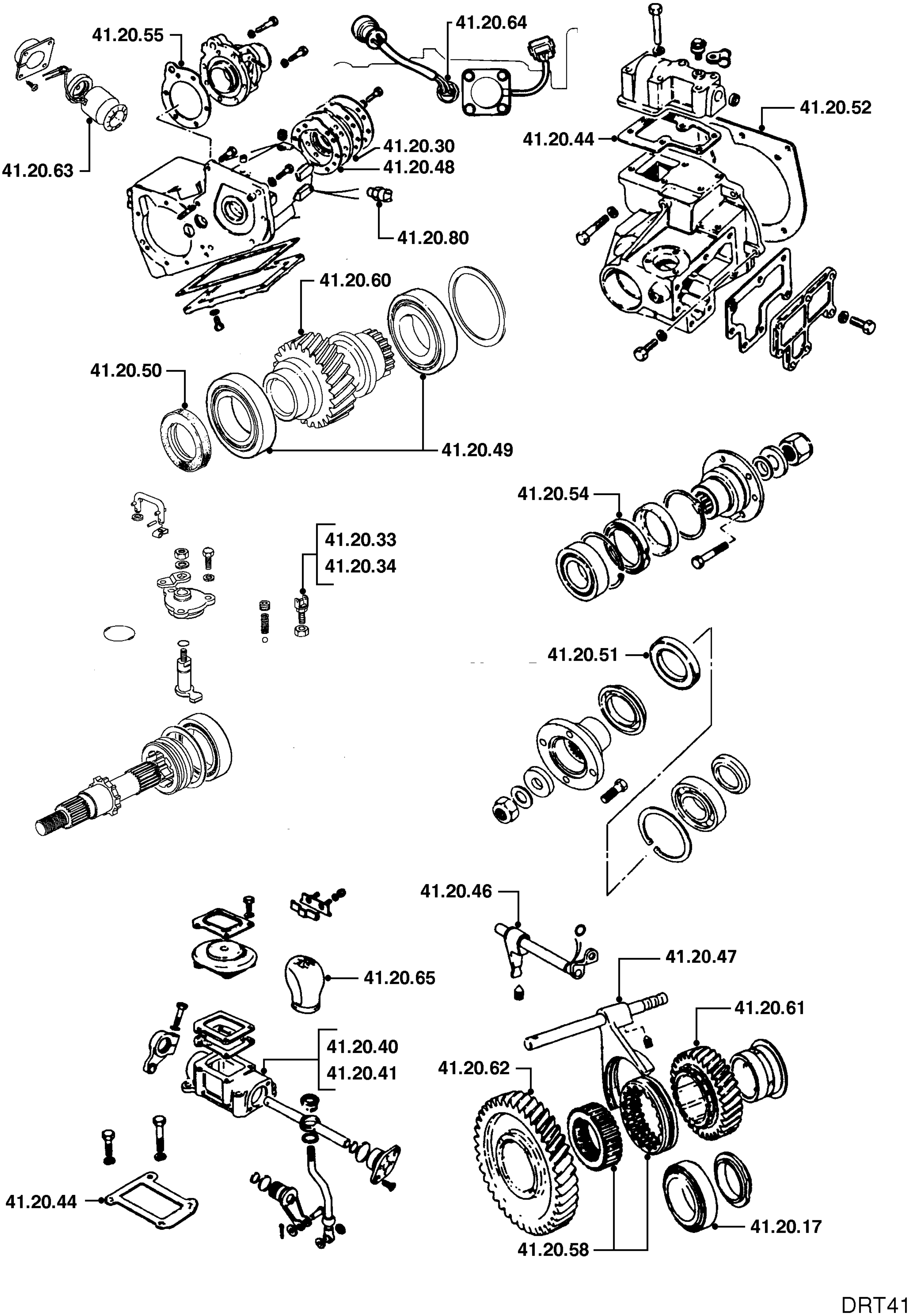
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DRT40

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|---|---|---|---|
| **41.20** | **TRANSFER GEARBOX** | | |
| 41.20.30 | Gasket - rear cover plate - replace .............................................. . | 00.40 | 3R4 |
| 41.20.33 | Switch - differential lock actuator - adjust .................................... . | 00.90 | |
| 41.20.34 | Switch - differential lock actuator - replace .................................. . | 01.00 | |
| 41.20.40 | Housing - selector lever - replace ................................................ . | 01.00 | 3W8 |
| 41.20.41 | Housing - selector lever - overhaul ............................................... . | 01.80 | 3W8 |
| 41.20.44 | Gasket - hi-lo selector housing - replace ...................................... . | 01.40 | 3R9 |
| 41.20.46 | Linkage/cable - hi-lo selector - adjust .......................................... . | 00.90 | 3W8 |
| 41.20.47 | Fork - hi-lo selector - replace ........................................................ . | 07.20 | 3W8 |
| 41.20.48 | Gasket - input gear support plate - replace .................................. . | 00.40 | |
| 41.20.49 | Input gear/bearings - replace ......................................................... . | 07.10 | 8H5 |
| 41.20.50 | Oil seal - input shaft - replace ...................................................... . | 05.30 | 3R6 |
| 41.20.50/01 | Oil seal - input shaft - replace - transfer gearbox removed .......... . | 00.10 | 3R6 |
| 41.20.51 | Oil seal(s) - front output shaft - replace ....................................... . | 00.60 | 3R7 |
| 41.20.52 | Gasket - front output shaft housing - replace ............................... . | 04.20 | 3R7 |
| 41.20.54 | Oil seal(s) - rear output shaft - replace ........................................ . | 00.90 | 3R7 |
| 41.20.55 | Gasket - rear output shaft housing - replace ................................ . | 01.10 | 3R7 |
| 41.20.58 | Hi-lo selector hub & sleeve assembly - replace ............................ . | 07.70 | 3W8 |
| 41.20.60 | Input gear/bearing - replace ........................................................... . | 07.10 | 3H5 |
| 41.20.60/01 | Input gear/bearing - replace - with unit removed .......................... . | 01.40 | 3H5 |
| 41.20.61 | High gear - central differential - replace ....................................... . | 07.50 | |
| 41.20.62 | Low gear - centre differential - replace. ........................................ . | 07.70 | |
| 41.20.63 | Solenoid - hi-lo gearshift interlock - replace ................................. . | 01.00 | 3T9 |
| 41.20.64 | Switch - audible alarm - gearshift neutral - replace ...................... . | 00.90 | 3T0 |
| 41.20.65 | Knob - hi-lo selector lever - replace .............................................. . | 00.20 | 3L3 |

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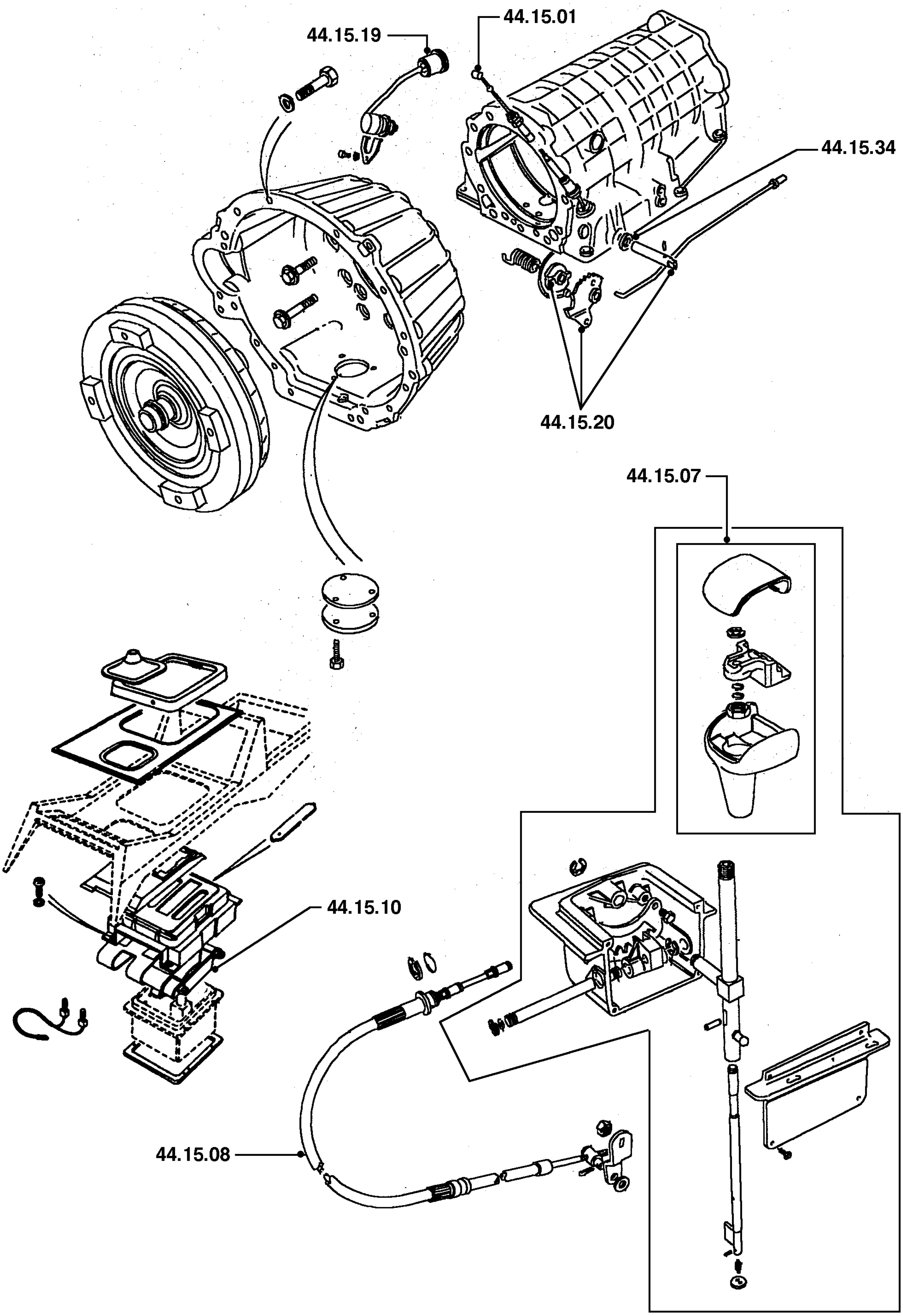


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41.20.49
41.20.54
41.20.33
41.20.34
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41.20.46
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(Operations include adjustments to cables where necessary)

| | | | |
|---|---|---|---|
| **44.15** | **CONTROLS & LINKAGE** | | |
| 44.15.01 | Cable/control - downshift - replace - includes adjustment ............ . | 02.70 | 4F5 |
| 44.15.04 | Lever - gearshift selector assembly - replace .............................. . | 01.40 | 4F1 |
| 44.15.07 | Knob - gearshift lever - replace .................................................... . | 00.20 | 4F1 |
| 44.15.08 | Rod/cable assembly - gearshift - replace. ................................... . | 01.50 | 4F3 |
| 44.15.10 | Indicator - gearshift - replace........................................................ . | 00.60 | 4F8 |
| 44.15.19 | Switch - starter inhibitor - replace ................................................ . | 00.50 | 7H2 |
| 44.15.20 | Gearshift shaft, cams & stop plate - replace ................................ . | 03.00 | 4F2 |
| 44.15.34 | Oil seal - gearshift shaft - replace ................................................ . | 00.40 | 4H8 |
| 44.15.37 | Relay(s) - gearshift interlock - replace. ........................................ . | 00.10 | 4B3 |
| 44.15.38 | Relay(s) - gearshift neutral - replace ............................................ . | 00.10 | 4B4 |

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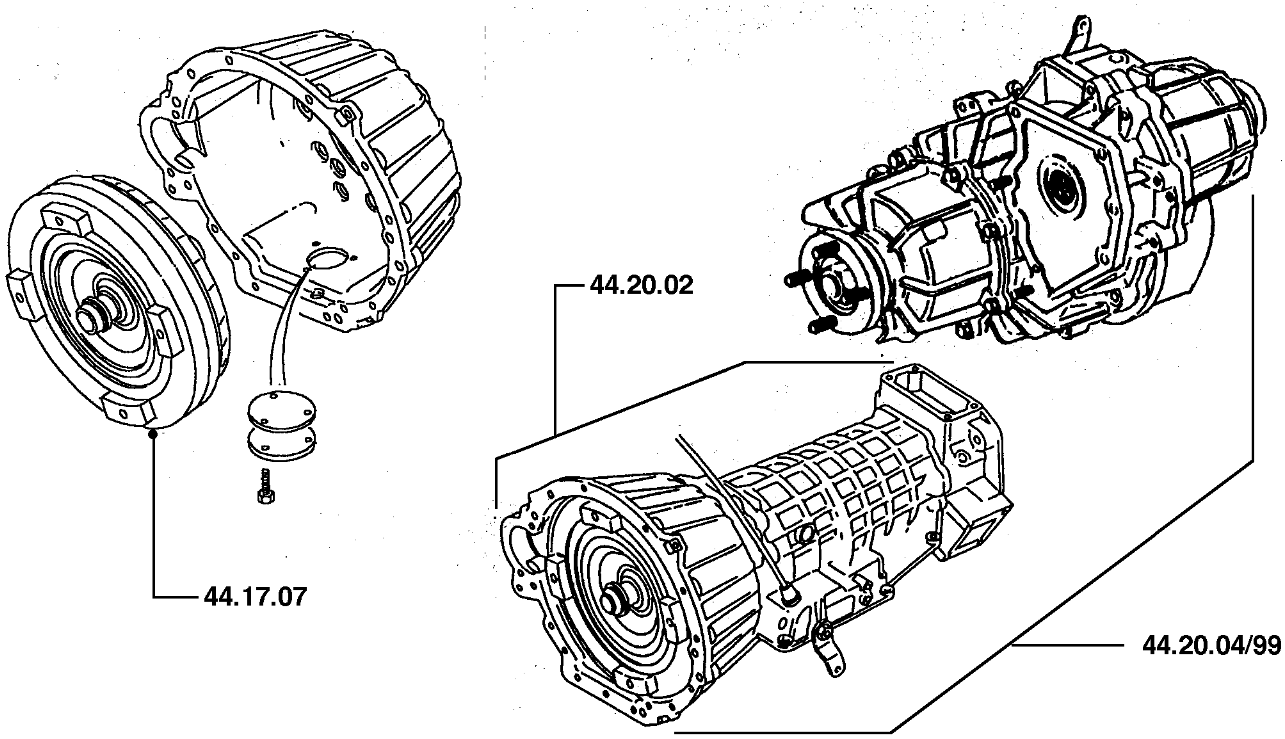


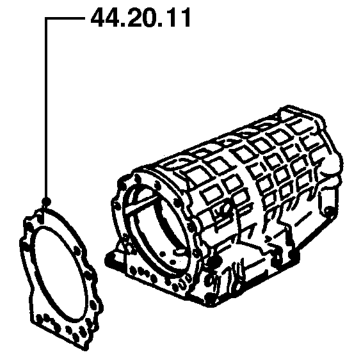

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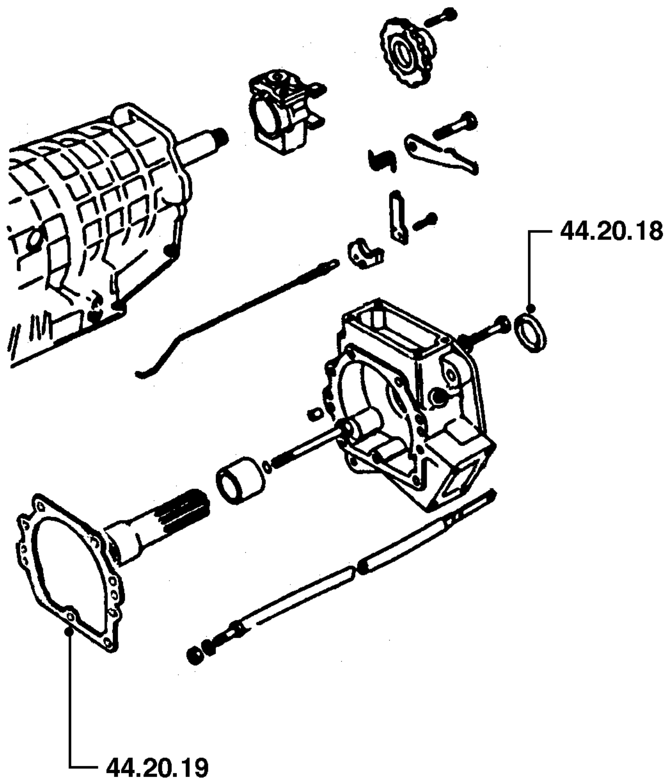
(Operations include adjustments to cables where necessary)

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|---|---|---|---|
| **44.17** | **CONVERTER, HOUSING & PRIMARY DRIVE** | | |
| 44.17.07 | Converter assembly - replace ....................................................... . | 07.20 | 4A4 |
| 44.17.11 | Oil seal - converter - replace......................................................... . | 07.20 | 4H1 |
| **44.20** | **TRANSMISSION ASSEMBLY & CASINGS** | | |
| 44.20.02 | Transmission & converter - replace ............................................. . | 07.60 | * |
| 44.20.04/99 | Transmission/converter & transfer gearbox assembly - remove for. access and reinstall ...................................................................... | 07.00 | * |
| 44.20.11 | Gasket - intermediate plate - replace........................................... . | 07.50 | * |
| 44.20.18 | Oil seal - rear extension housing - replace ................................. . | 05.30 | 4J5 |
| 44.20.19 | Gasket - rear extension housing - replace.................................... . | 05.80 | 4J8 |

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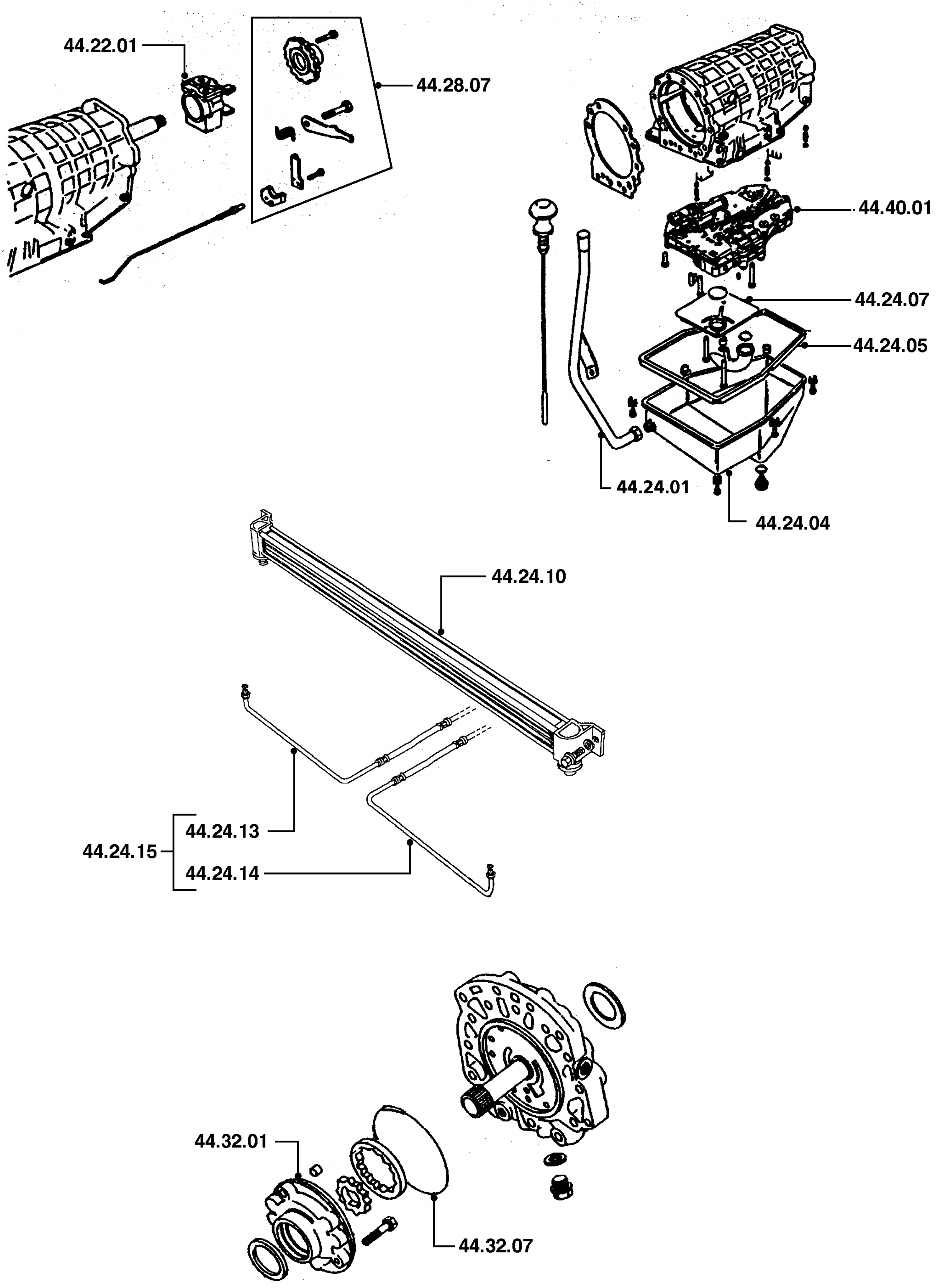




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(Operations include adjustments to cables where necessary)

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| **44.22** | **GOVERNOR** | | |
| 44.22.01 | Governor assembly - replace......................................................... . | 06.00 | 4E1 |
| 44.22.04 | Governor assembly - overhaul...................................................... . | 06.20 | 4E1 |
| **44.24** | **LUBRICATION SYSTEM** | | |
| 44.24.01 | Tube - fluid filler - replace ............................................................ . | 00.70 | 4B8 |
| 44.24.02 | Lubrication system - drain & refill.................................................. . | 00.60 | * |
| 44.24.04 | Pan - fluid - replace ...................................................................... . | 02.10 | 4A0 |
| 44.24.05 | Gasket- oil/fluid pan - replace ...................................................... . | 02.10 | 4H7 |
| 44.24.07 | Filter - fluid - replace .................................................................... . | 02.20 | |
| 44.24.10 | Cooler - oil/fluid - replace.............................................................. . | 01.10 | 4B9 |
| 44.24.13 | Hose - supply - fluid cooler - replace ............................................ . | 00.80 | 4B0 |
| 44.24.14 | Hose - return - fluid cooler - replace ............................................ . | 00.80 | 4B0 |
| 44.24.15 | Hoses/pipes - oil/fluid cooler - set - replace................................. . | 00.90 | 4B0 |
| **44.28** | **PARKING BRAKE/PARK LOCK** | | |
| 44.28.07 | Parking brake pawl assembly/park lock mechanism - replace .... . | 05.80 | 4D7 |
| **44.30** | **PRESSURE & ADJUSTMENT CHECKS** | | |
| 44.30.02 | Cable/linkage - downshift control - check & adjust. ...................... . | 00.20 | 4F5 |
| 44.30.04 | Cable/rod - gearshift - check & adjust .......................................... . | 00.30 | 4F3 |
| 44.30.13 | Stall test. ........................................................................................ . | 00.60 | * |
| **44.32** | **PUMPS** | | |
| 44.32.01 | Pump - main - replace ................................................................... . | 08.20 | 4A7 |
| 44.32.07 | Oil seal - main pump - replace. ..................................................... . | 07.20 | 4H2 |
| **44.40** | **VALVE BODIES** | | |
| 44.40.01 | Valve body assembly - replace ..................................................... . | 02.50 | 4C9 |
| **44.90** | **DIAGNOSIS** **(Operations are based on the procedures in the shop manual, trouble shooting manuals and/or using TestBook)** | | |
| 44.90.01/01 | Automatic transmission test procedure (includes pressure test) .. . | 00.70 | |

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|---|---|---|
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44.22.01
44.28.07
44.40.01
44.24.07
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44.24.01
44.24.04
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44.24.15
44.24.13
44.24.14
44.32.01
44.32.07

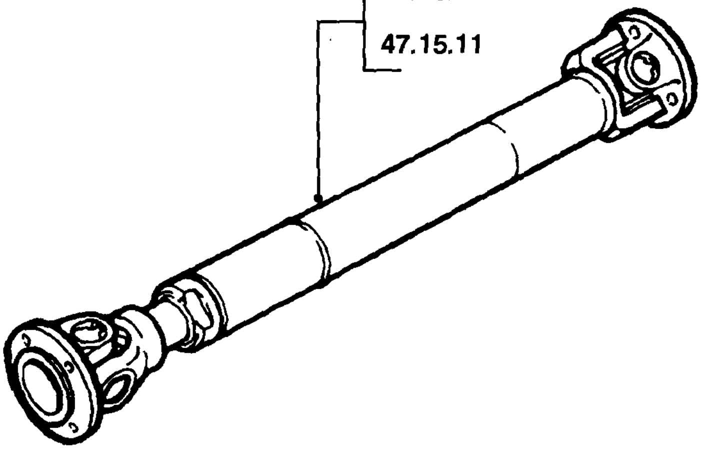
DRT44

| | | | |
|---|---|---|---|
| **47.15** | **PROPELLER SHAFT** | | |
| 47.15.02 | Propeller shaft - front - replace ..................................................... . | 00.70 | 4K1 |
| 47.15.03 | Propeller shaft - rear - replace ...................................................... . | 00.70 | 4K1 |
| 47.15.11 | Universal joint(s) - propeller shaft - front - replace........................ . | 01.80 | * |
| 47.15.12 | Universal joint(s) - propeller shaft - rear - replace ........................ . | 01.80 | * |

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**Z - INOPERATIVE**

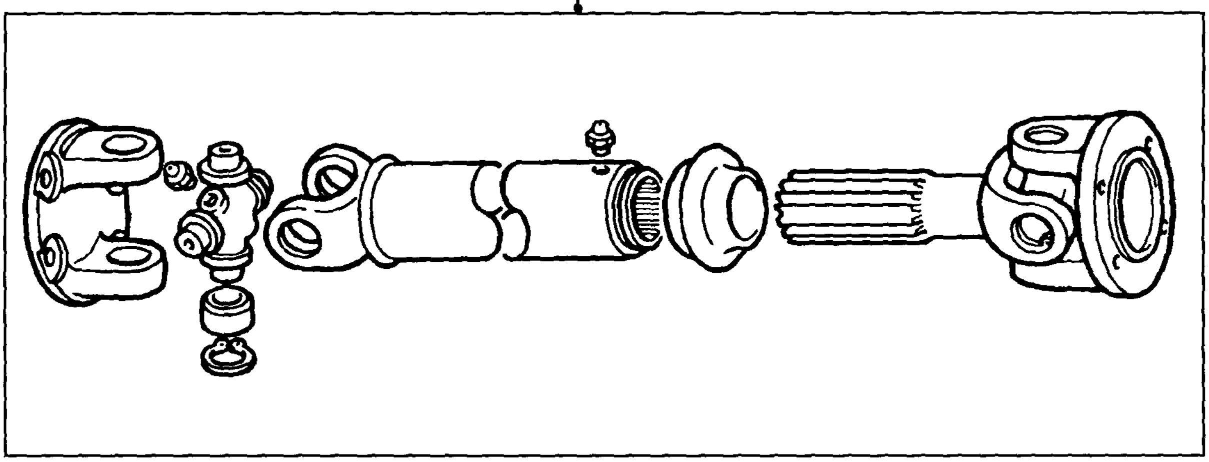
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47.15.11



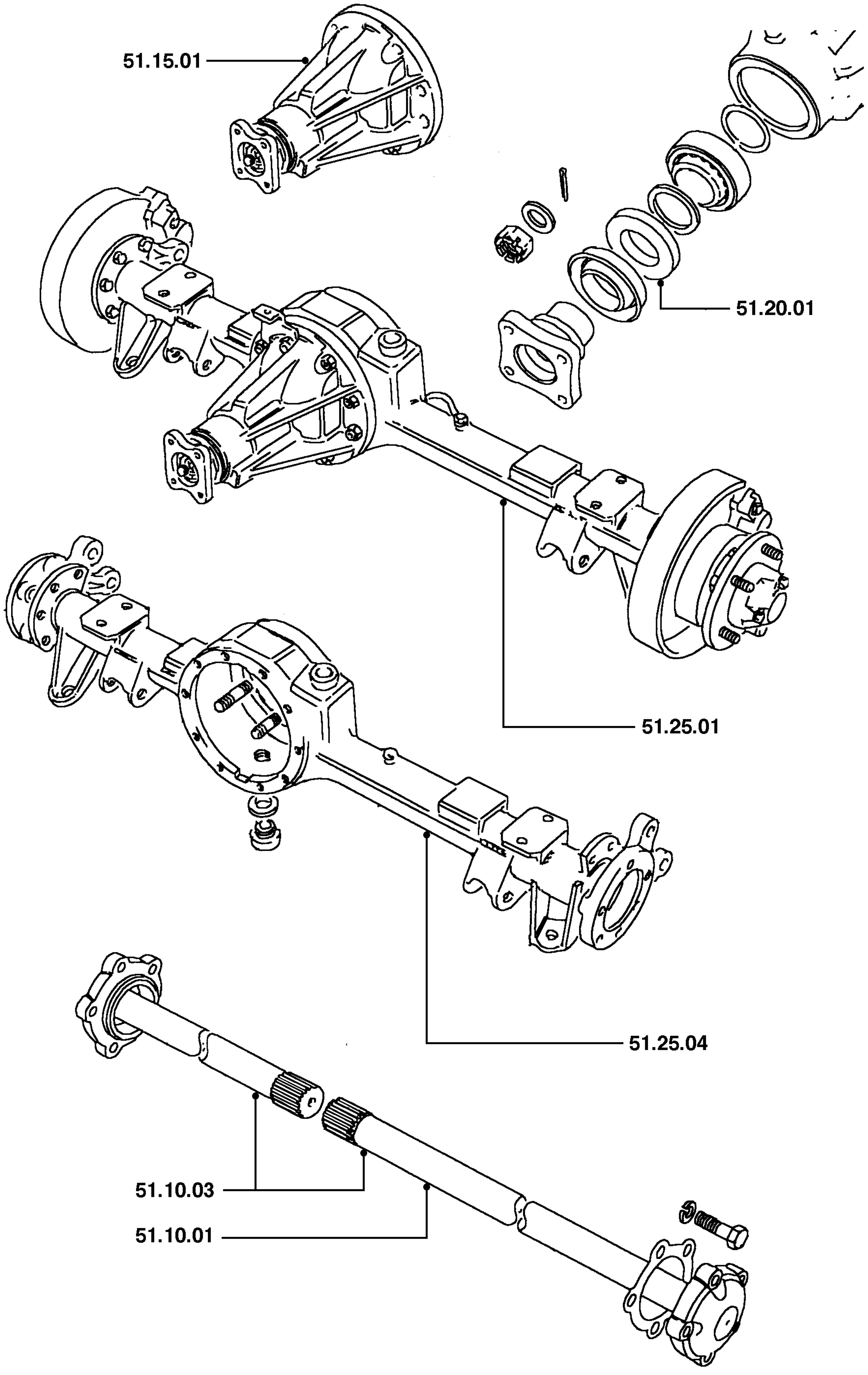
47.15.03

47.15.12



| | | | |
|---|---|---|---|
| **51.10** | **AXLE (HALF) SHAFTS** | | |
| 51.10.01 | Half shaft - LH/each - replace. | 00.40 | 4L5 |
| 51.10.03 | Half shafts - both - replace | 00.70 | 4L5 |
| **51.15** | **DIFFERENTIAL ASSEMBLY** | | |
| 51.15.01 | Differential assembly - replace | 01.50 | * |
| **51.20** | **OIL SEALS & GASKETS** | | |
| 51.20.01 | Oil seal - pinion - replace | 00.60 | 4S1 |
| **51.25** | **REAR AXLE & FINAL DRIVE UNIT** | | |
| 51.25.01 | Axle assembly - replace | 02.50 | * |
| 51.25.04 | Casing - replace | 03.80 | 4N1 |

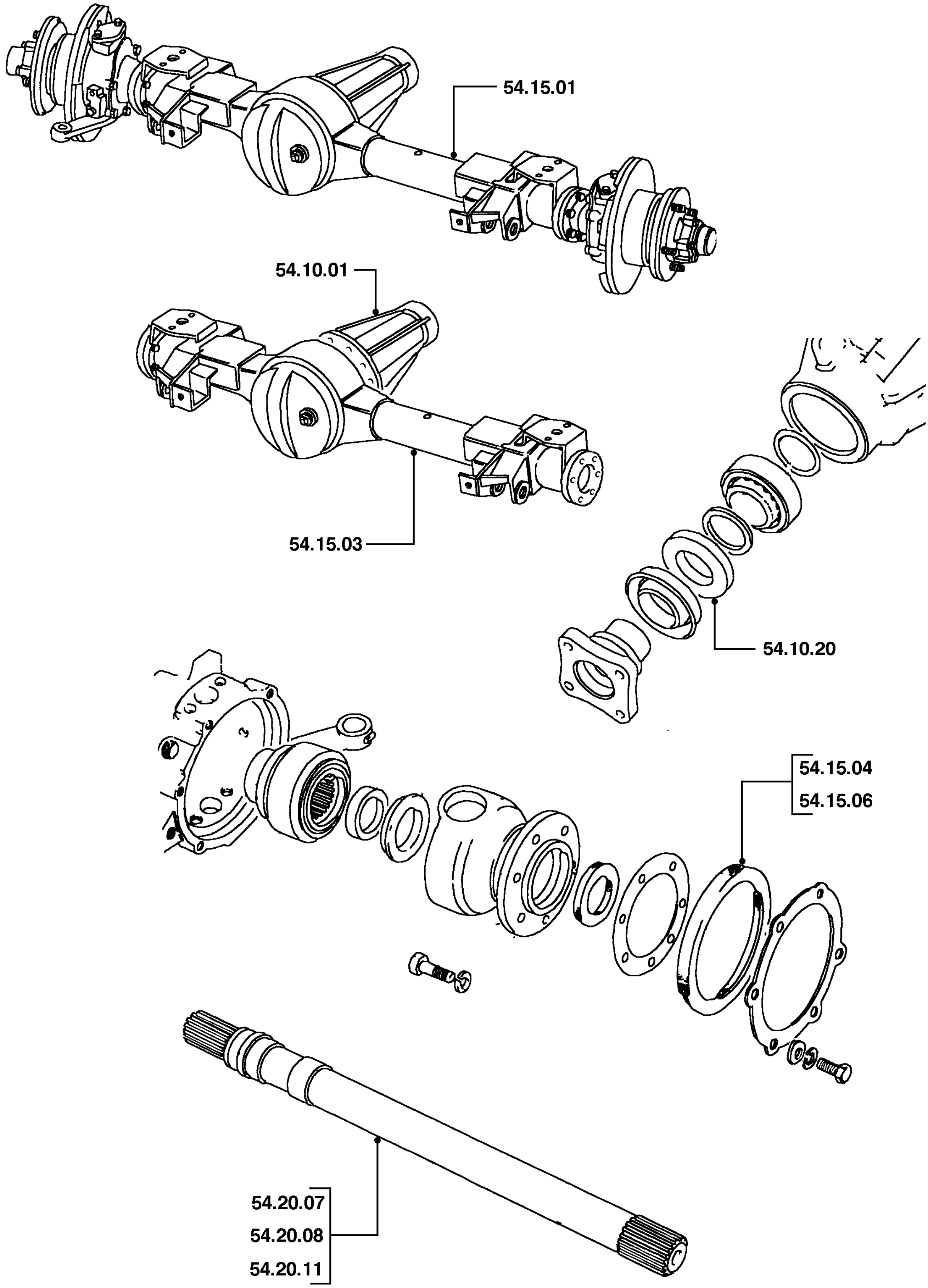
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**Z - INOPERATIVE**




DRT2

| | | | |
|---|---|---|---|
| **54.10** | **DIFFERENTIAL ASSEMBLY** | | |
| 54.10.01 | Differential assembly - replace | 03.40 | * |
| 54.10.20 | Oil seal - pinion - replace | 00.60 | 4S5 |
| **54.15** | **FRONT AXLE ASSEMBLY** | | |
| 54.15.01 | Axle assembly - replace | 02.30 | * |
| 54.15.03 | Casing - replace | 03.30 | 4N1 |
| 54.15.04 | Oil seal - axle case - replace. | 01.00 | 4S6 |
| 54.15.06 | Oil seals - axle case - both sides - replace | 01.70 | 4S6 |
| **54.20** | **SHAFTS** | | |
| 54.20.07 | Half shaft - LH/each - replace. | 01.30 | 4L1 |
| 54.20.08 | Half shaft - both - replace | 02.50 | 4L1 |
| 54.20.11 | Half shaft - RH - replace | 01.30 | 4L1 |
| 54.20.12 | End float - axle shaft - LH/each - check and adjust | 00.40 | * |
| 54.20.13 | End float - axle shaft - both - check and adjust | 00.60 | * |

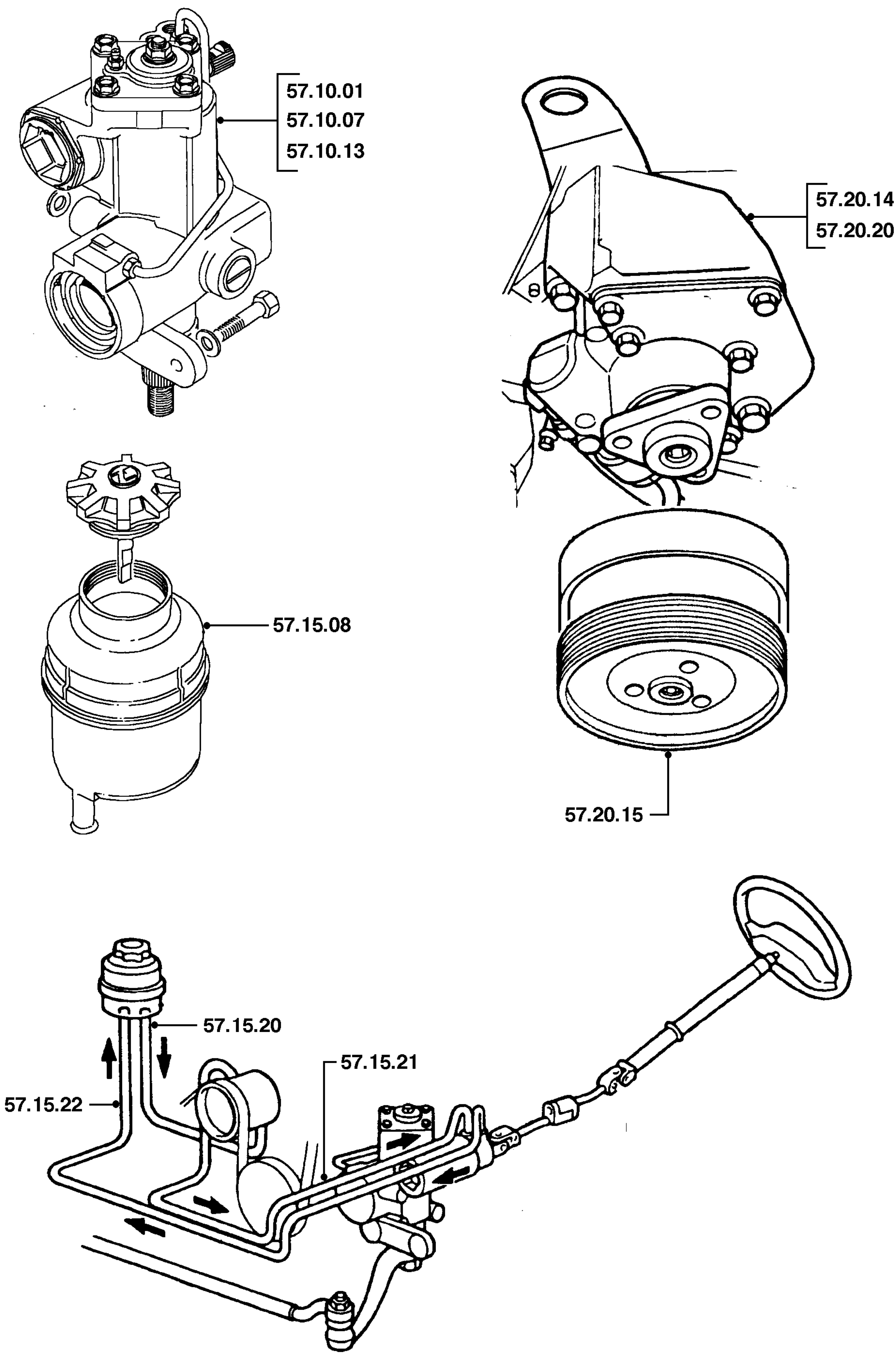
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54.15.01
54.10.01
54.15.03
54.10.20
54.15.04
54.15.06
54.20.07
54.20.08
54.20.11

DRT3

| | | | |
|---|---|---|---|
| **57.10** | **POWER STEERING RACK/BOX ASSEMBLY** | | |
| 57.10.01 | Power steering rack/box - replace | 01.80 | 5F4 |
| 57.10.07 | Power steering rack/box - overhaul | 03.20 | 5F4 |
| 57.10.13 | Power steering rack/box - adjust | 00.40 | * |
| **57.15** | **POWER STEERING OIL SYSTEM** | | |
| 57.15.01 | Power steering system - test | 01.30 | * |
| 57.15.02 | Power steering system - bleed | 00.30 | * |
| 57.15.08 | Reservoir - power steering oil - replace. | 00.40 | 5G5 |
| 57.15.20 | Hose - feed - steering pump - replace | 00.50 | 5G4 |
| 57.15.21 | Pipe/hose - feed - steering rack/box - replace | 00.40 | 5G4 |
| 57.15.22 | Pipe/hose - return - steering rack/box - replace | 00.50 | 5G4 |
| **57.20** | **POWER STEERING PUMP** | | |
| 57.20.14 | Pump - steering - replace | 00.90 | 5G1 |
| 57.20.15 | Pulley - replace | 00.50 | 2H4 |
| 57.20.20 | Pump - steering - overhaul | 01.80 | 5G1 |
| **57.35** | **STEERING RACK/BOX ADJUSTMENT** | | |
| 57.35.01 | Steering box - adjust | 00.40 | 5F1 |
| 57.35.05 | Steering rack/box - centralise. | 00.40 | |

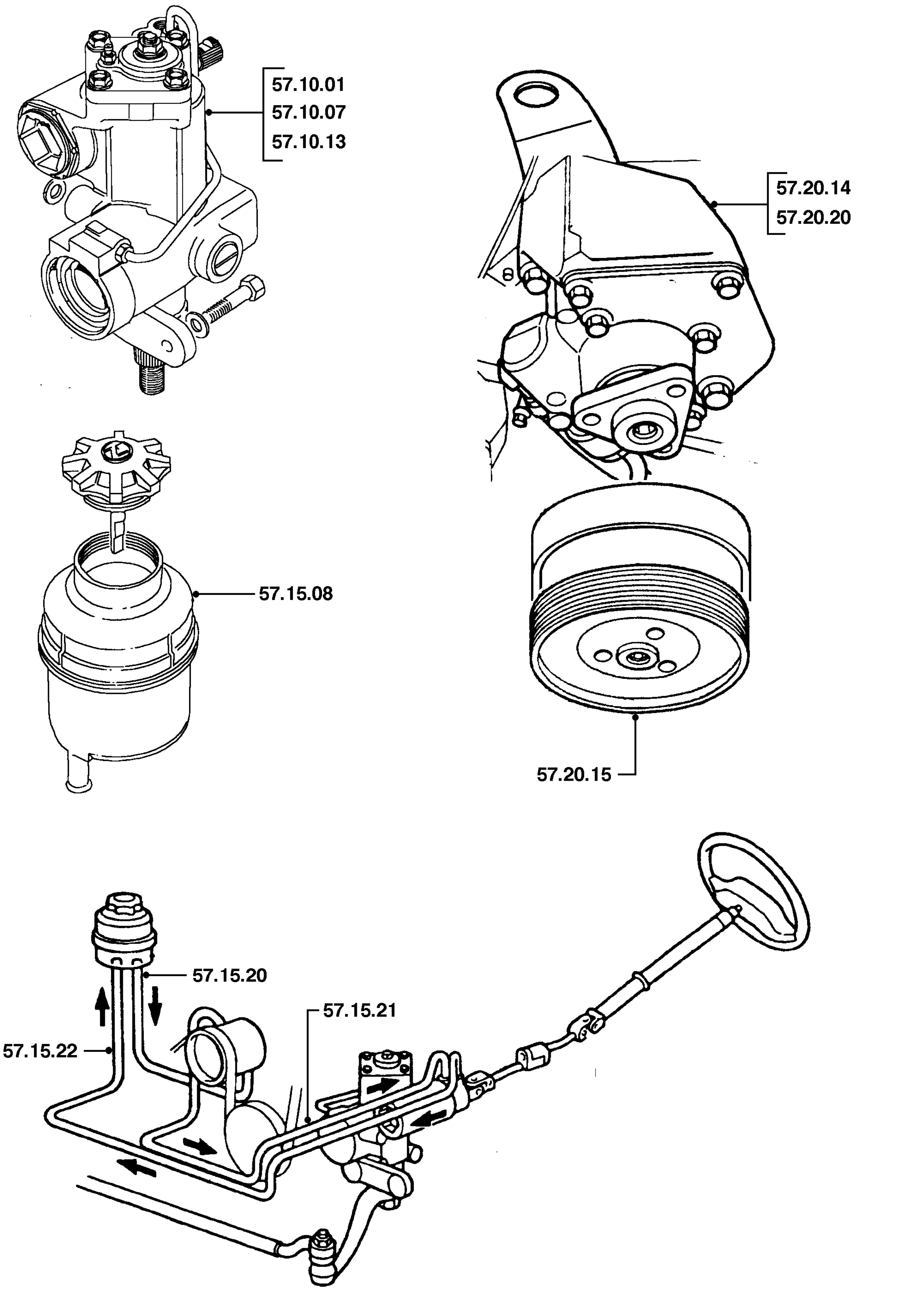
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57.10.01
57.10.07
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57.15.08
57.20.15
57.15.20
57.15.21
57.15.22

DRT45

| | | | |
|---|---|---|---|
| **57.40** | **STEERING COLUMN** | | |
| 57.40.01 | Column assembly - inner & outer - replace .................................. . | 02.50 | 5D4 |
| 57.40.10 | Column - assembly - overhaul ...................................................... . | 02.80 | * |
| 57.40.16 | Shaft - column - lower - replace .................................................... . | 00.30 | 5D4 |
| 57.40.26 | Universal joint - column - upper - replace .................................... . | 00.30 | 5D6 |
| 57.40.27 | Universal joint - column - lower - replace...................................... . | 00.30 | 5D0 |
| 57.40.29 | Surround - column - complete - replace ...................................... . | 00.40 | 8E7 |
| 57.40.31 | Column lock & ignition/starter switch assembly - replace ............ . | 00.70 | 5D5 |
| **57.50** | **STEERING IDLER/RELAY UNIT** | | |
| 57.50.14 | Drop arm - replace......................................................................... . | 00.60 | 5E7 |
| **57.55** | **STEERING RODS** | | |
| 57.55.07 | Ball joint - track rod - each - replace ........................................... . | 00.50 | 5E3 |
| 57.55.08 | Ball joints - track rod - set - replace ............................................. . | 00.60 | 5E3 |
| 57.55.09 | Track rod - replace.......................................................................... . | 01.00 | 5E3 |
| 57.55.15 | Ball joint - side rod/drag link - each - replace................................ . | 00.80 | 5E5 |
| 57.55.17 | Side rod/drag link - replace .......................................................... . | 00.80 | 5E5 |
| 57.55.21 | Damper - steering box - replace .................................................. . | 00.40 | 5E1 |
| **57.60** | **STEERING WHEEL** | | |
| 57.60.01 | Steering wheel - replace .............................................................. . | 00.30 | 5D1 |
| 57.60.03 | Pad - steering wheel - replace. .................................................... . | 00.10 | 8E8 |
| **57.65** | **WHEEL ALIGNMENT** | | |
| 57.65.01 | Front wheel alignment - check & adjust......................................... . | 00.50 | 5E6 |
| 57.65.03 | Lock stops - check and adjust ...................................................... . | 00.40 | 5E2 |

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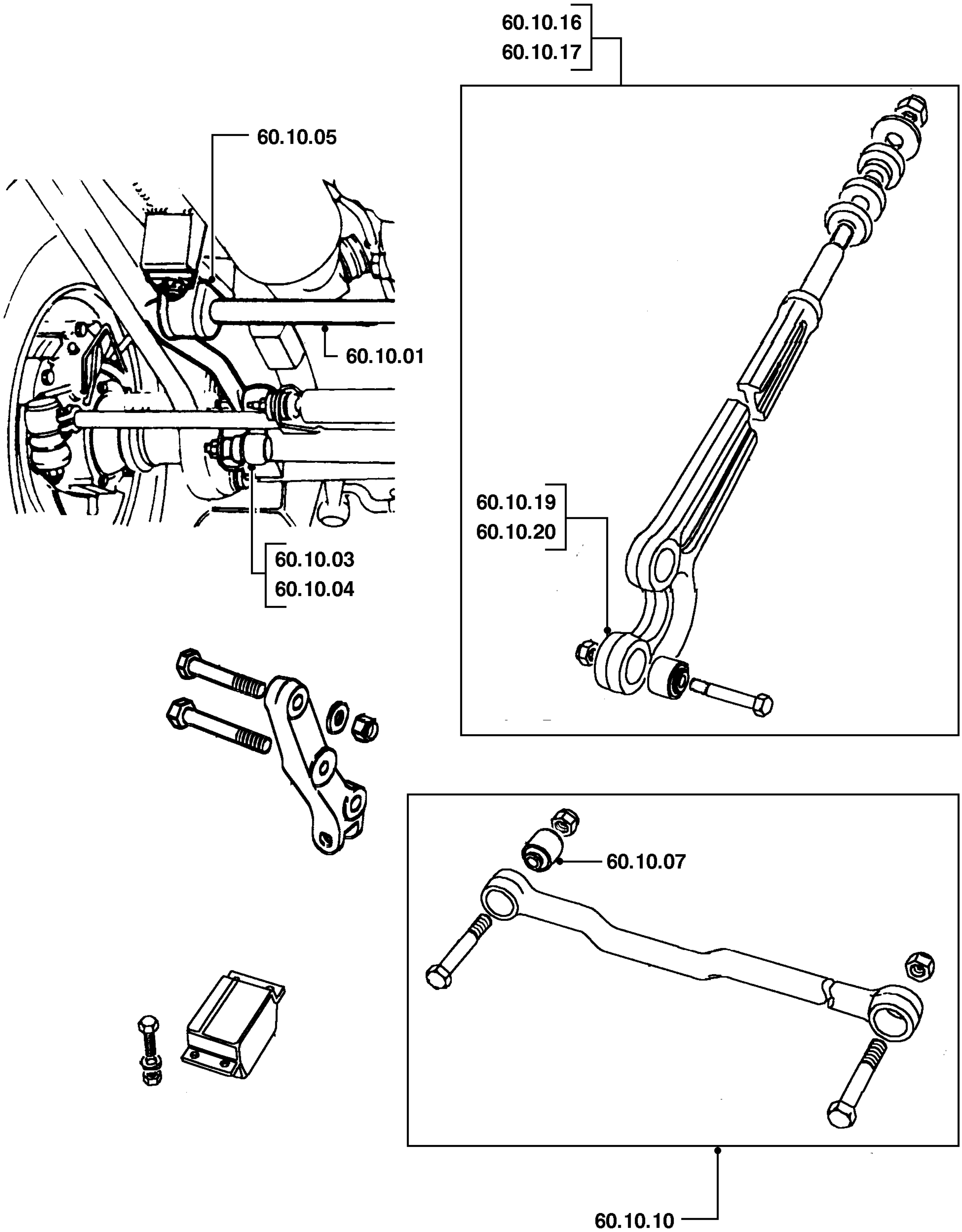

57.10.01
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57.15.21
57.15.22

DRT46

(Operations do not include wheel alignment)

| | | | |
|---|---|---|---|
| **60.10** | **ANTI SWAY BARS/STABILISERS** | | |
| 60.10.01 | Anti sway bar - replace .................................................................. . | 00.60 | 5J5 |
| 60.10.03 | Ball joint links - anti sway bar - both sides - replace .................... . | 00.50 | 5J7 |
| 60.10.04 | Ball joint link - anti sway bar - each - replace................................ . | 00.40 | 5J7 |
| 60.10.05 | Rubber mountings - anti sway bar - set - replace ........................ . | 00.40 | 5J6 |
| 60.10.07 | Bush(s) - Panhard rod - replace .................................................. . | 00.60 | 5J4 |
| 60.10.10 | Stabiliser/panhard/tie rod - replace ............................................. . | 00.60 | 5J3 |
| 60.10.16 | Radius rod - replace. ..................................................................... . | 00.80 | 5H1 |
| 60.10.17 | Radius rods - both sides - replace ................................................ . | 01.00 | 5H1 |
| 60.10.19 | Bush(s) - radius rod - both sides - replace.................................... . | 01.00 | 5H1 |
| 60.10.20 | Bush(s) - radius rod - one side - replace ...................................... . | 00.80 | 5H1 |

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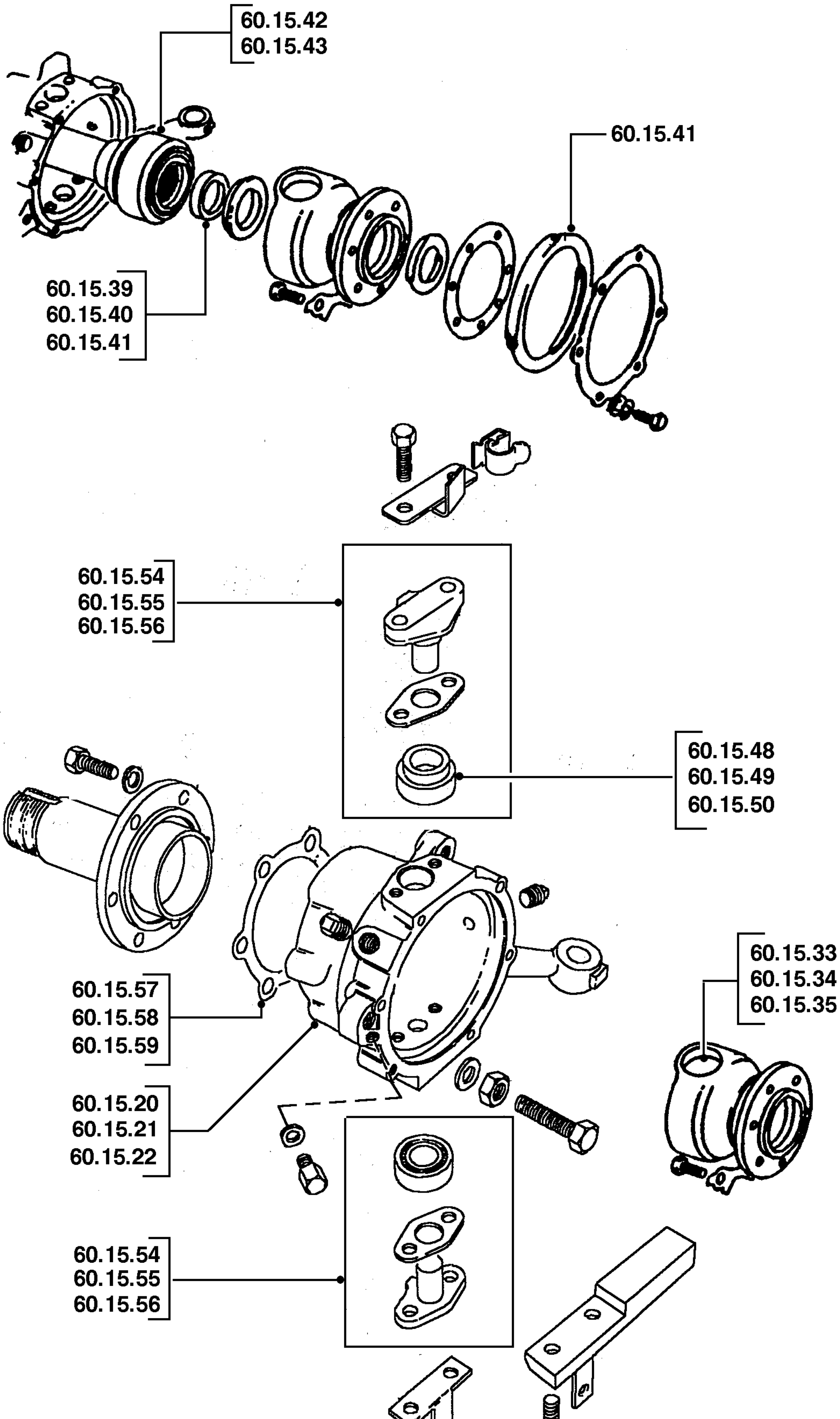

60.10.16
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60.10.10

DRT4

(Operations do not include wheel alignment)

| | | | |
|---|---|---|---|
| **60.15** | **BALL JOINTS & KNUCKLES** | | |
| 60.15.20 | Housing - swivel pin - LH - replace | 01.90 | 5H6 |
| 60.15.21 | Housing - swivel pin - RH - replace | 02.00 | 5H6 |
| 60.15.22 | Housings - swivel pins - both sides - replace | 03.70 | 5H6 |
| 60.15.33 | Housing - swivel pin bearing - LH - replace | 01.90 | 5H6 |
| 60.15.34 | Housing - swivel pin bearing - RH - replace | 02.00 | 5H6 |
| 60.15.35 | Housing - swivel pin bearing - both sides - replace | 03.70 | 5H6 |
| 60.15.39 | Oil seals - swivel pin housing - outer - both sides - replace | 03.70 | 5H0 |
| 60.15.40 | Oil seal - swivel pin housing - outer - LH - replace | 01.90 | 5H0 |
| 60.15.41 | Oil seal - swivel pin housing - outer - RH - replace | 02.00 | 5H0 |
| 60.15.42 | Constant velocity joint - swivel pin housing - both sides - replace | 02.30 | 5H8 |
| 60.15.43 | Constant velocity joint - swivel pin housing - one side - replace | 01.30 | 5H8 |
| 60.15.46 | Constant velocity joint - swivel pin housing - RH - remove & reinstall | 01.30 | 5H8 |
| 60.15.48 | Bearings - swivel pin - both sides - replace | 03.70 | 5H8 |
| 60.15.49 | Bearings - swivel pin - LH - replace | 01.90 | 5H8 |
| 60.15.50 | Bearings - swivel pin - RH - replace | 01.90 | 5H8 |
| 60.15.54 | Bearings - swivel pin - both sides - adjust | 03.70 | 5H8 |
| 60.15.55 | Bearings - swivel pin - LH - adjust | 01.90 | 5H8 |
| 60.15.56 | Bearings - swivel pin - RH - adjust | 02.00 | 5H8 |
| 60.15.57 | Gaskets - swivel pin bearing housing - both sides - replace | 03.70 | 5H0 |
| 60.15.58 | Gasket - swivel pin bearing housing - LH - replace. | 01.90 | 5H0 |
| 60.15.59 | Gasket - swivel pin bearing housing - RH - replace. | 02.00 | 5H0 |
| 60.15.63 | Oil seals - hub & swivel assembly - replace | 02.00 | 5H0 |
| 60.15.64 | Oil seals - hub and swivel assembly - RH - replace. | 02.00 | 5H0 |
| 60.15.65 | Oil seals - hub & swivel assembly - both sides - replace | 03.70 | 5H0 |

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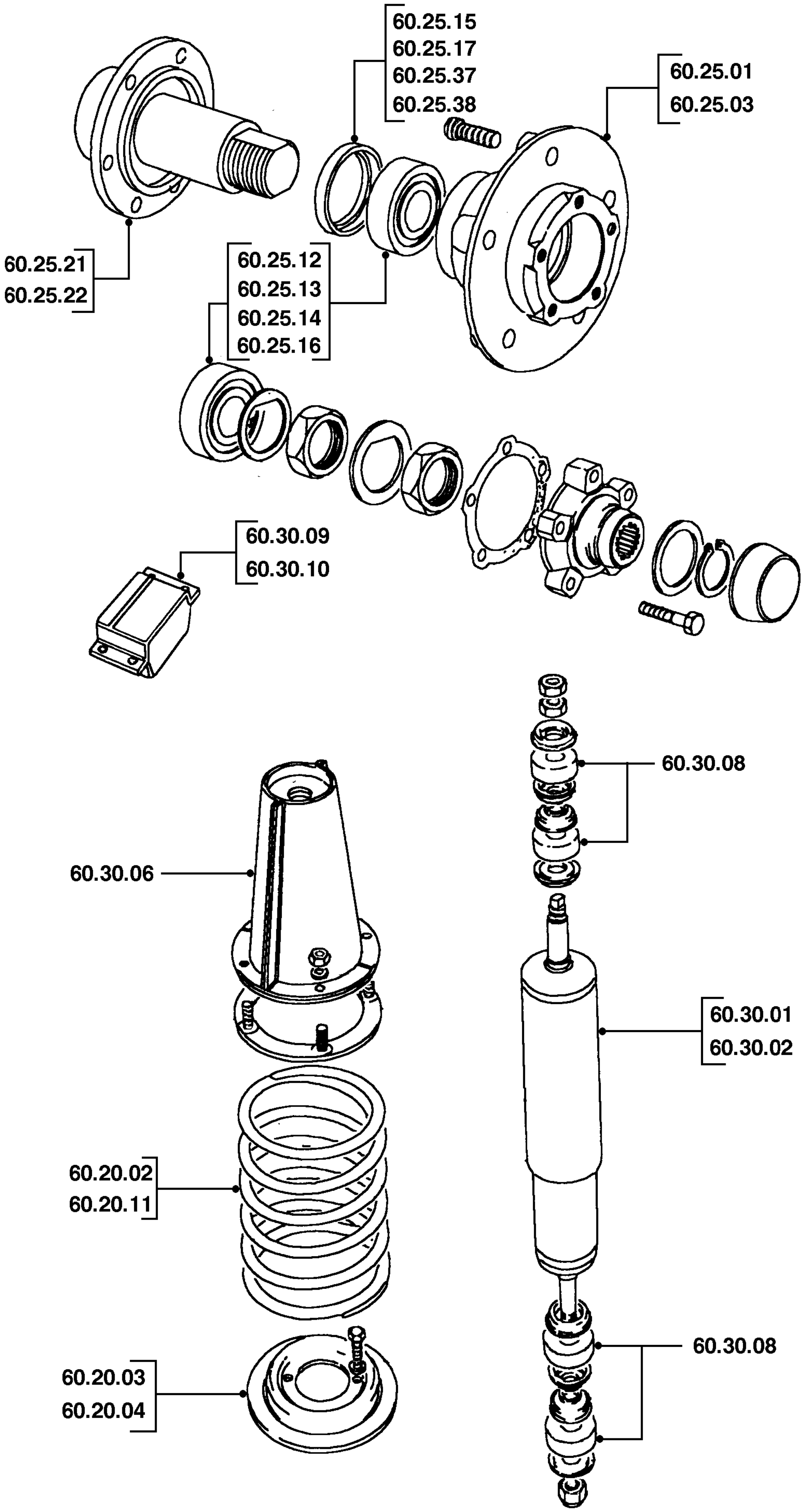

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DRT5

(Operations do not include wheel alignment)

| | | | |
|---|---|---|---|
| **60.20** | **ROAD SPRINGS** | | |
| 60.20.02 | Spring assemblies - both sides - replace. .................................... . | 01.10 | 5N1 |
| 60.20.03 | Spring seats - lower - both sides - replace.................................... . | 01.30 | 5N2 |
| 60.20.04 | Spring seats - lower - one side - replace ...................................... . | 00.70 | 5N2 |
| 60.20.11 | Road spring - each - replace ........................................................ . | 00.60 | 5N1 |
| **60.25** | **HUBS, DRIVE FLANGES & WHEELS** | | |
| 60.25.01 | Hub - each - replace. ................................................................... . | 01.40 | 5V1 |
| 60.25.03 | Hubs - both sides - replace ......................................................... . | 02.50 | 5V1 |
| 60.25.12 | Bearings - hubs - both sides - check & adjust end float................ . | 00.80 | 5V4 |
| 60.25.13 | Bearings - hub - one side - check & adjust end float .................... . | 00.50 | 5V4 |
| 60.25.14 | Bearings - hub - one side - replace ............................................. . | 01.40 | 5V4 |
| 60.25.15 | Oil seals - hub - one side - replace ............................................. . | 00.90 | 5V3 |
| 60.25.16 | Bearings - hubs - both sides - replace ......................................... . | 02.50 | 5V4 |
| 60.25.17 | Oil seals - hubs - both sides - replace .......................................... . | 01.60 | 5V3 |
| 60.25.21 | Stub axles - both sides - replace ................................................. . | 02.50 | 5H7 |
| 60.25.22 | Stub axle - one side - replace. ..................................................... . | 01.40 | 5H7 |
| 60.25.37 | Oil seal - front hub stub axle - one side - replace ........................ . | 01.30 | 5V3 |
| 60.25.38 | Oil seals - front hub stub axle - both sides - replace .................... . | 02.40 | 5V3 |
| **60.30** | **SUSPENSION DAMPERS & STOP RUBBERS** | | |
| 60.30.01 | Dampers - both sides - replace..................................................... . | 01.10 | 5R1 |
| 60.30.02 | Damper - one side - replace ........................................................ . | 00.70 | 5R1 |
| 60.30.03 | Dampers - front & rear - remove & reinstall .................................. . | 02.20 | 5R1 |
| 60.30.06 | Mounting turret - front - both sides - remove & reinstall................ . | 01.10 | 5R4 |
| 60.30.08 | Mounting rubber - damper - one side - replace ............................ . | 00.40 | 5R4 |
| 60.30.09 | Bump stops - both sides - replace ................................................ . | 00.40 | 5N7 |
| 60.30.10 | Bump stop(s) - one side - replace ................................................ . | 00.40 | 5N7 |

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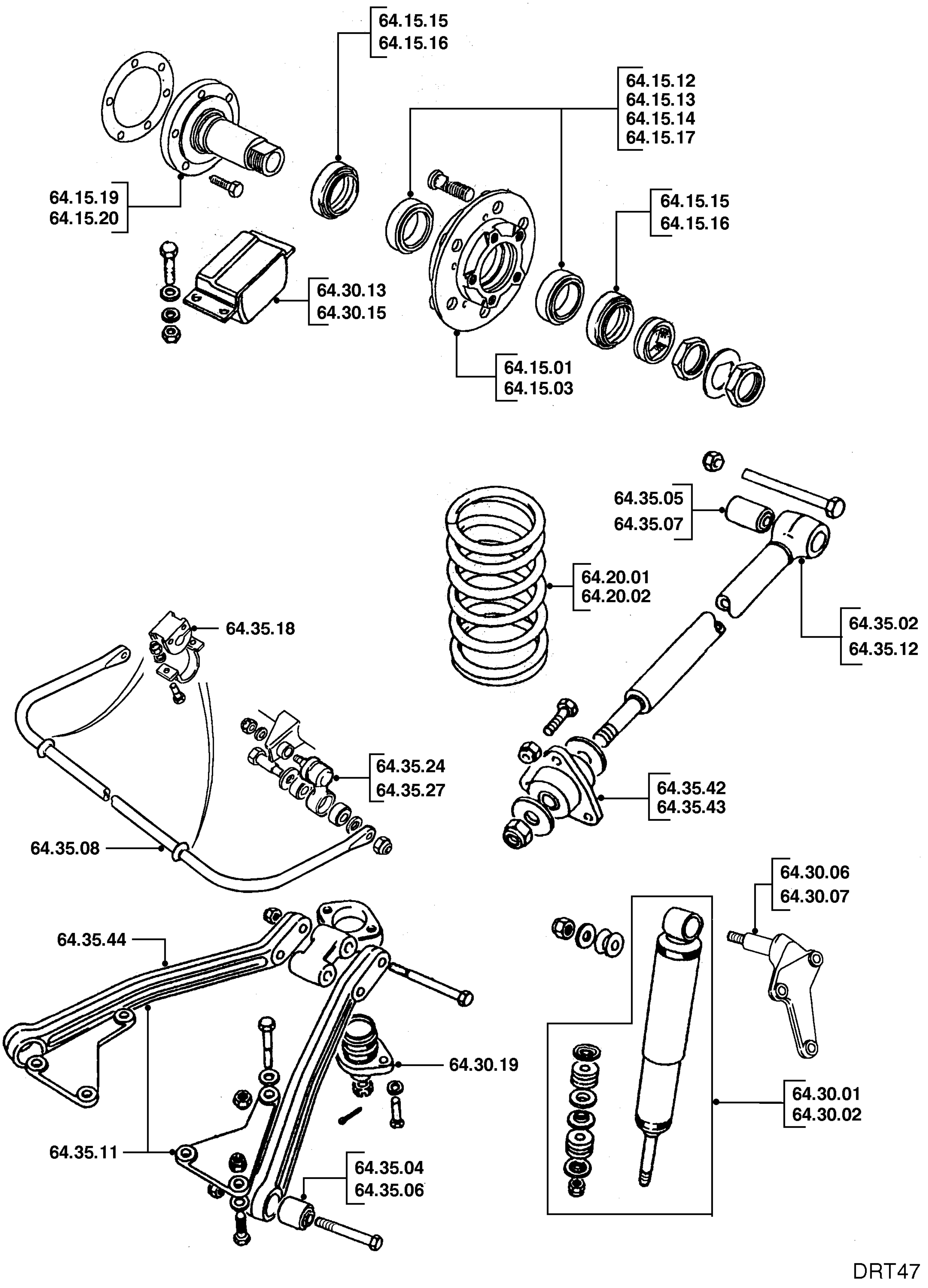

60.25.15
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60.30.10
60.30.08
60.30.06
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60.30.08
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60.20.04

DRT6

(Operations do not include wheel alignment)

| | | | |
|---|---|---|---|
| **64.15** | **HUBS** | | |
| 64.15.01 | Hub - each - replace. .......................................................... . | 01.30 | 5W1 |
| 64.15.03 | Hubs - both sides - replace .......................................................... . | 02.30 | 5W1 |
| 64.15.12 | Bearings - hubs - both sides - check & adjust end float................ . | 00.80 | 5W4 |
| 64.15.13 | Bearings - hub - one side - check & adjust end float .................... . | 00.50 | 5W4 |
| 64.15.14 | Bearing(s) - hub - one side - replace ........................................... . | 01.20 | 5W4 |
| 64.15.15 | Oil seal(s) - hub - one side - replace ........................................... . | 00.70 | 5W3 |
| 64.15.16 | Oil seals - hubs - both sides - replace .......................................... . | 01.20 | 5W3 |
| 64.15.17 | Bearings - hubs - both sides - replace .......................................... . | 02.20 | 5W4 |
| 64.15.19 | Stub axles - rear - both sides - replace........................................ . | 01.40 | 5W2 |
| 64.15.20 | Stub axle - each - replace ............................................................ . | 00.80 | 5W2 |
| 64.15.22 | Oil seal - rear stub axle - LH/each - replace ................................ . | 00.80 | 5W3 |
| 64.15.23 | Oil seals - rear stub axles - both sides - replace........................... . | 01.50 | 5W3 |
| **64.20** | **ROAD SPRINGS** | | |
| 64.20.01 | Road spring - each - replace ....................................................... . | 00.60 | 5P1 |
| 64.20.02 | Spring assemblies - both sides - replace. .................................... . | 01.10 | 5P1 |
| **64.30** | **SUSPENSION DAMPERS & RUBBER STOPS** | | |
| 64.30.01 | Dampers - both sides - replace..................................................... . | 01.00 | 5R5 |
| 64.30.02 | Dampers - one side - replace ...................................................... . | 00.60 | 5R5 |
| 64.30.06 | Brackets - damper top mountings - both sides - replace .............. . | 01.10 | 5R4 |
| 64.30.07 | Bracket - damper top mounting - each - replace .......................... . | 00.60 | 5R4 |
| 64.30.13 | Bump stop/arch spring - both sides - replace .............................. . | 00.50 | 5P7 |
| 64.30.15 | Bump stop - one side - replace..................................................... . | 00.30 | 5P7 |
| 64.30.19 | Ball joints - axle bracket - replace ................................................ . | 00.80 | 5L7 |
| **64.35** | **SUSPENSION LINKS & ARMS** | | |
| 64.35.02 | Suspension link - lower - replace.................................................. . | 00.30 | 5L1 |
| 64.35.04 | Bushing - suspension link - upper - one side - replace ................ . | 00.40 | 5L2 |
| 64.35.05 | Bushing - suspension link - lower - one side - replace.................. . | 00.30 | 5L1 |
| 64.35.06 | Bushing - suspension link - upper - both sides - replace .............. . | 00.40 | 5L2 |
| 64.35.07 | Bushing - suspension link - lower - both sides - replace .............. . | 00.40 | 5L1 |
| 64.35.08 | Anti sway bar - replace ................................................................ . | 00.30 | 5M7 |
| 64.35.08/01 | Anti sway bar - replace ................................................................ . | 00.20 | |
| 64.35.11 | Suspension links - upper - both sides - replace............................ . | 00.70 | 5L2 |
| 64.35.12 | Suspension links - lower - both sides - replace ............................ . | 00.40 | 5L1 |
| 64.35.18 | Rubber bushing - anti sway bar - set - replace ............................ . | 00.30 | 5J6 |
| 64.35.24 | Link - anti sway bar - replace. ...................................................... . | 00.30 | 5J8 |
| 64.35.27 | Links - anti sway bar - rear - both sides - replace ........................ . | 00.40 | 5J8 |
| 64.35.42 | Flexible mountings - lower suspension link - both sides - replace . | 00.40 | 5L1 |
| 64.35.43 | Flexible mountings - lower suspension link - one side - replace .. . | 00.30 | 5L1 |
| 64.35.44 | Suspension link - upper - one side - replace ................................ . | 00.40 | 5L2 |

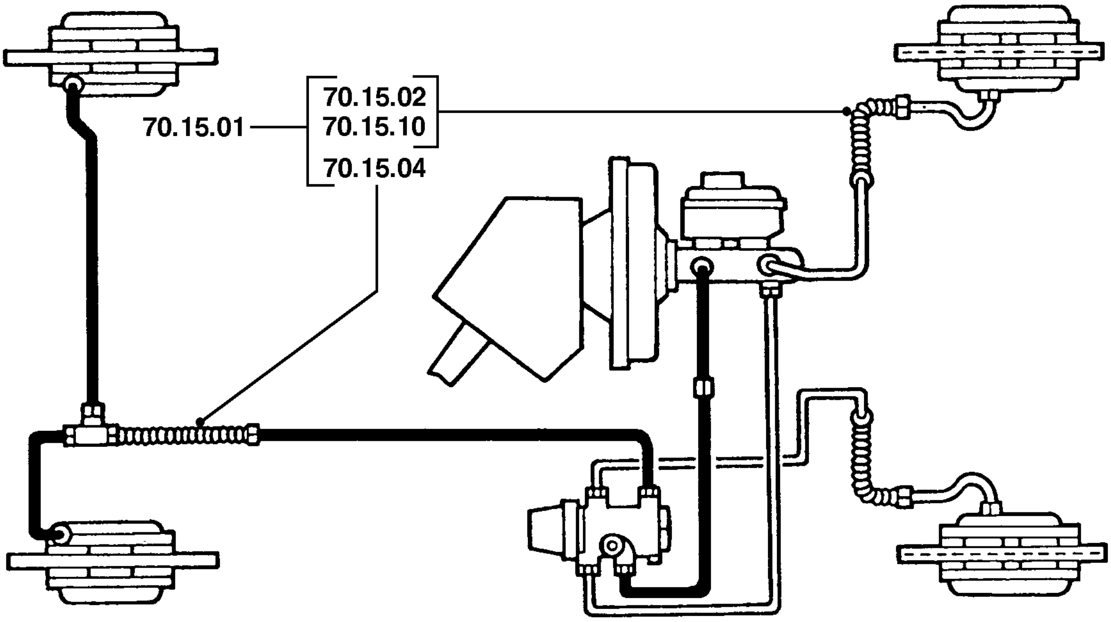
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| **B - POROUS/ADRIFT** | **K - NOISY/CHAFED** | **T - SHORT CIRCUIT/THREAD DAMAGE** |
| **C - BAD FIT** | **L - JUDDER/POOR CONNECTION** | **U - INACCURATE/SLIPPING** |
| **D - BROKEN** | **M - BODY/COOLANT LEAKS/BURNT** | **V - BULB/LIGHT UNIT FAILURE** |
| **E - CRACKED/SPLIT/CUT** | **N - LEAKS - NOT COOLANT LOSS** | **W - VIBRATION/OUT OF BALANCE** |
| **F - SEIZED/STIFF** | **P - DIFFICULT ENGAGEMENT** | **X - BRAKE PULL/SURFACE DAMAGE** |
| **G - LOOSE/SEAK SYNCHROMESH** | **Q - FADED/STAINED/DISCOLOURED** | **Z - INOPERATIVE** |
| **H - CORRODED/PLATING FAILURE** | **R - FACTORY DAMAGE** | |

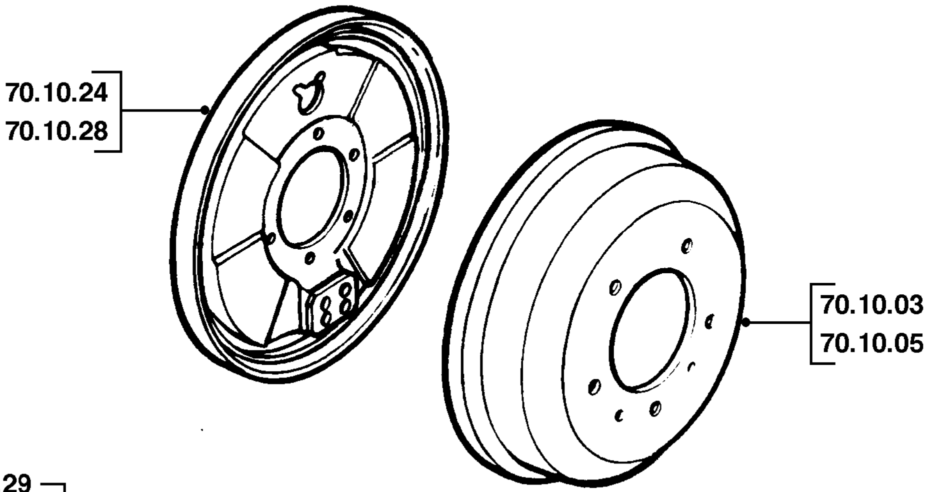

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DRT47

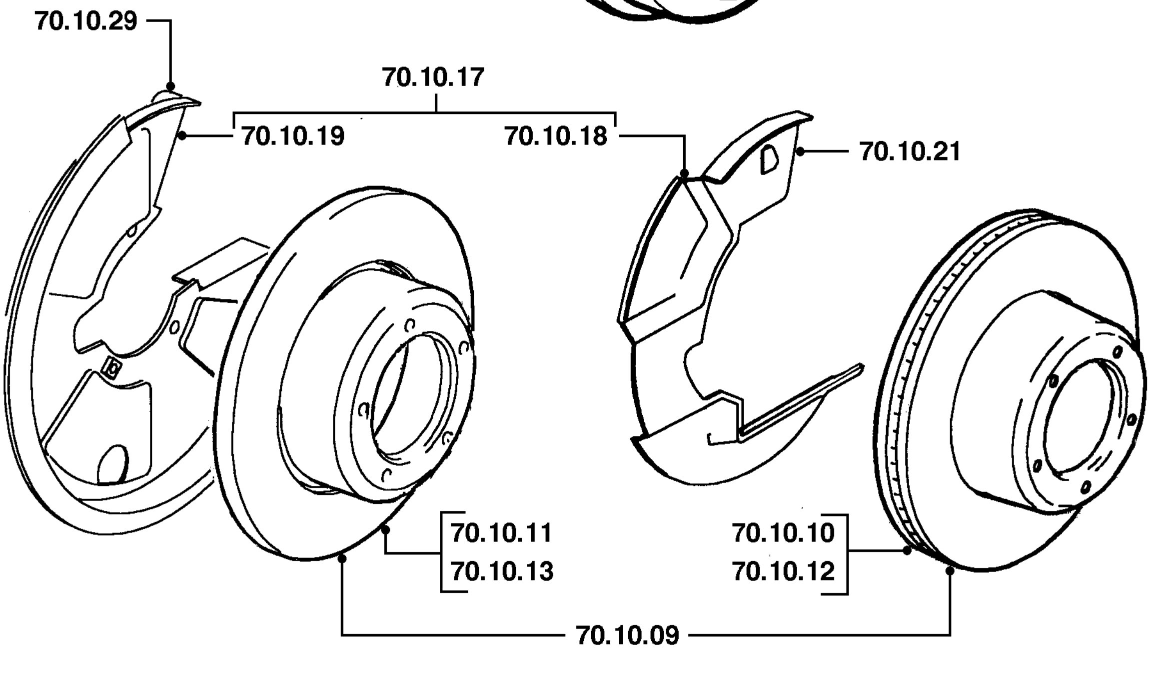
(Operations include bleeding brakes where necessary)

| | | | |
|---|---|---|---|
| **70.10** | **ROTORS & DRUMS** | | |
| | **(Includes check new rotor(s) for runout)** | | |
| 70.10.03 | Drum - rear - each - replace | 00.50 | 6F1 |
| 70.10.05 | Drums - rear - set - replace | 00.70 | 6F1 |
| 70.10.09 | Rotors - vehicle set - replace. | 04.70 | * |
| 70.10.10 | Rotor - front - each - replace | 01.30 | 6C1 |
| 70.10.12 | Rotors - front - set - replace. | 02.50 | 6C1 |
| 70.10.13 | Rotors - rear - set - replace | 02.30 | 6D1 |
| 70.10.17 | Rotor shields - vehicle set - replace | 01.40 | 6C7 |
| 70.10.18 | Rotor shield(s) - front - each - replace. | 00.50 | 6C7 |
| 70.10.19 | Rotor shield(s) - rear - each - replace | 00.40 | 6D7 |
| 70.10.21 | Rotor shields - front - axle set - replace | 00.70 | 6C7 |
| 70.10.24 | Back plates - rear - both sides - replace | 02.80 | 6F3 |
| 70.10.28 | Back plate - rear - each - replace | 02.00 | 6F3 |
| 70.10.29 | Rotor shields - rear - axle set - replace | 00.60 | 6D7 |
| | | | |
| **70.15** | **HOSES & CONNECTORS Includes bleeding system** | | |
| 70.15.01 | Hoses - complete set - replace. | 01.60 | 6G4 |
| 70.15.02 | Hose - front - primary - LH/each - replace | 00.80 | 6G4 |
| 70.15.04 | Hose - center/intermediate - replace | 00.70 | 6G4 |
| 70.15.10 | Hoses - front - set - replace | 01.10 | 6G4 |
| | | | |
| **70.25** | **HYDRAULIC SYSTEM** | | |
| 70.25.02 | Brakes - complete system - bleed | 00.50 | 6C0 |
| 70.25.03 | Brakes - adjust | 00.30 | * |
| 70.25.16 | Seals - brake system - set - replace | 03.70 | * |
| 70.25.18 | Seals & hoses - brake system - set - replace | 04.20 | * |
| 70.25.21 | Valve - pressure reducing - replace | 00.90 | 6G6 |

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**W - VIBRATION/OUT OF BALANCE**
**X - BRAKE PULL/SURFACE DAMAGE**
**Z - INOPERATIVE**


70.15.02
70.15.10
70.15.01
70.15.04


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70.10.28
70.10.03
70.10.05

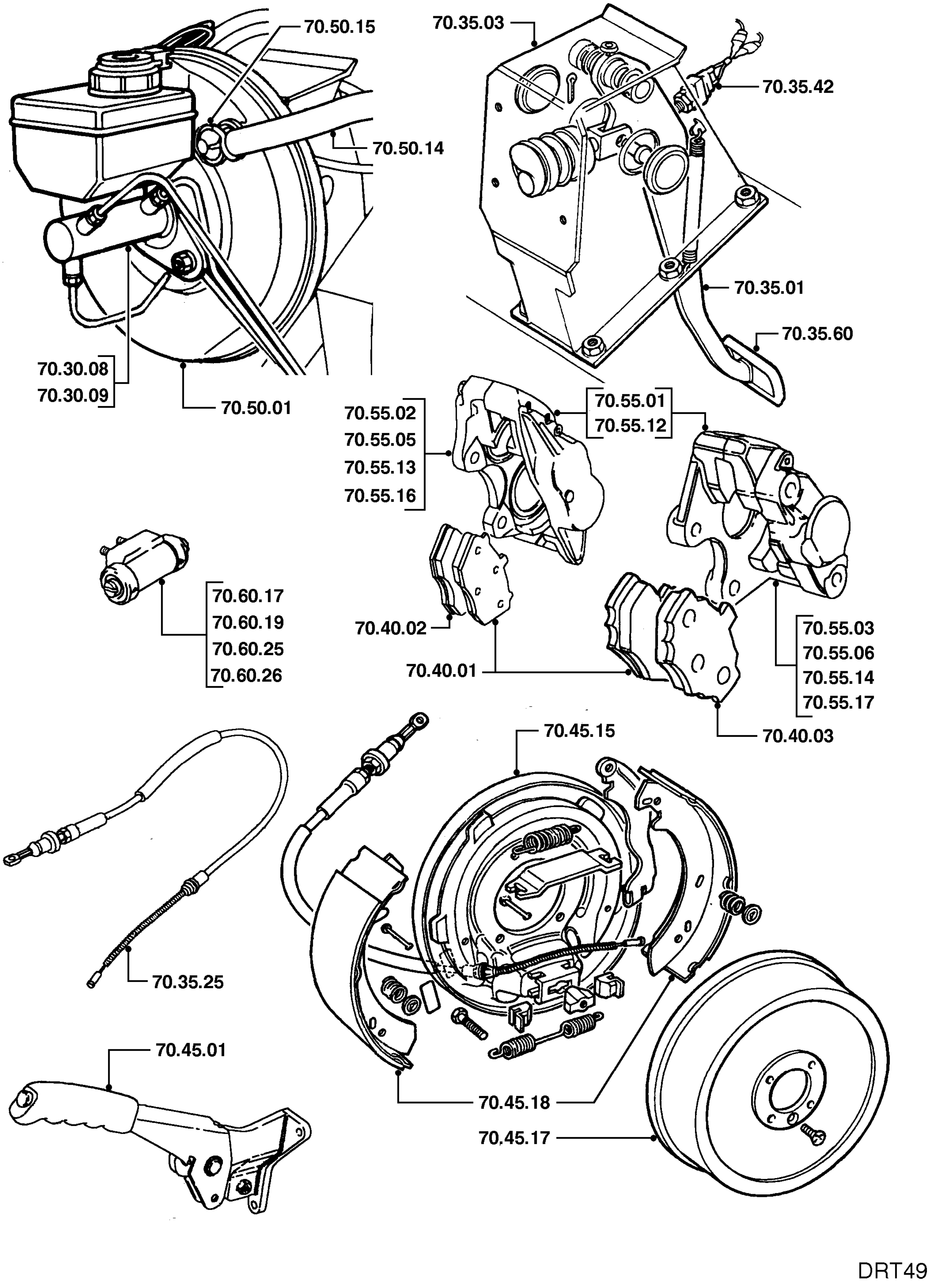

70.10.29
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70.10.11
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70.10.10
70.10.12
70.10.09

DRT48

(Operations include bleeding brakes where necessary)

| | | | |
|---|---|---|---|
| **70.30** | **MASTER CYLINDER** | | |
| 70.30.08 | Cylinder - master - tandem - replace | 00.90 | 6G1 |
| 70.30.09 | Cylinder - master - tandem - overhaul | 01.10 | 6G1 |
| **70.35** | **MECHANICAL LINKAGE** | | |
| 70.35.01 | Pedal - brake - replace | 01.50 | 6J1 |
| 70.35.03 | Pedal box - replace | 01.40 | * |
| 70.35.10 | Cable(s)/rod(s) - parking brake - adjust | 00.30 | 6A3 |
| 70.35.25 | Cable - parking brake - each - replace | 00.80 | 6A3 |
| 70.35.42 | Switch - stop light - replace | 00.40 | 7N1 |
| 70.35.60 | Pad cover - brake pedal - replace | 00.10 | 6J5 |
| **70.40** | **PADS/SHOES** | | |
| 70.40.01 | Pads/shoes - vehicle set - replace | 01.40 | * |
| 70.40.02 | Pads/shoes - front - set - replace | 00.80 | 6C2 |
| 70.40.03 | Pads/shoes - rear - set - replace | 00.80 | 6D2 |
| **70.45** | **TRANSMISSION BRAKE** | | |
| 70.45.01 | Hand lever - transmission brake - replace | 00.40 | 6A1 |
| 70.45.09 | Transmission brake - adjust | 00.30 | 6B1 |
| 70.45.15 | Back plate - transmission brake - replace | 00.80 | 6F3 |
| 70.45.17 | Drum - transmission brake - replace | 00.50 | 6F1 |
| 70.45.18 | Shoes - transmission brake - replace | 00.70 | 6B2 |
| **70.50** | **VACUUM SYSTEM** | | |
| 70.50.01 | Servo assembly - replace | 01.10 | 6H1 |
| 70.50.14 | Hose - manifold to servo - replace | 00.20 | 6H3 |
| 70.50.15 | Valve - non return - replace | 00.20 | 6H4 |

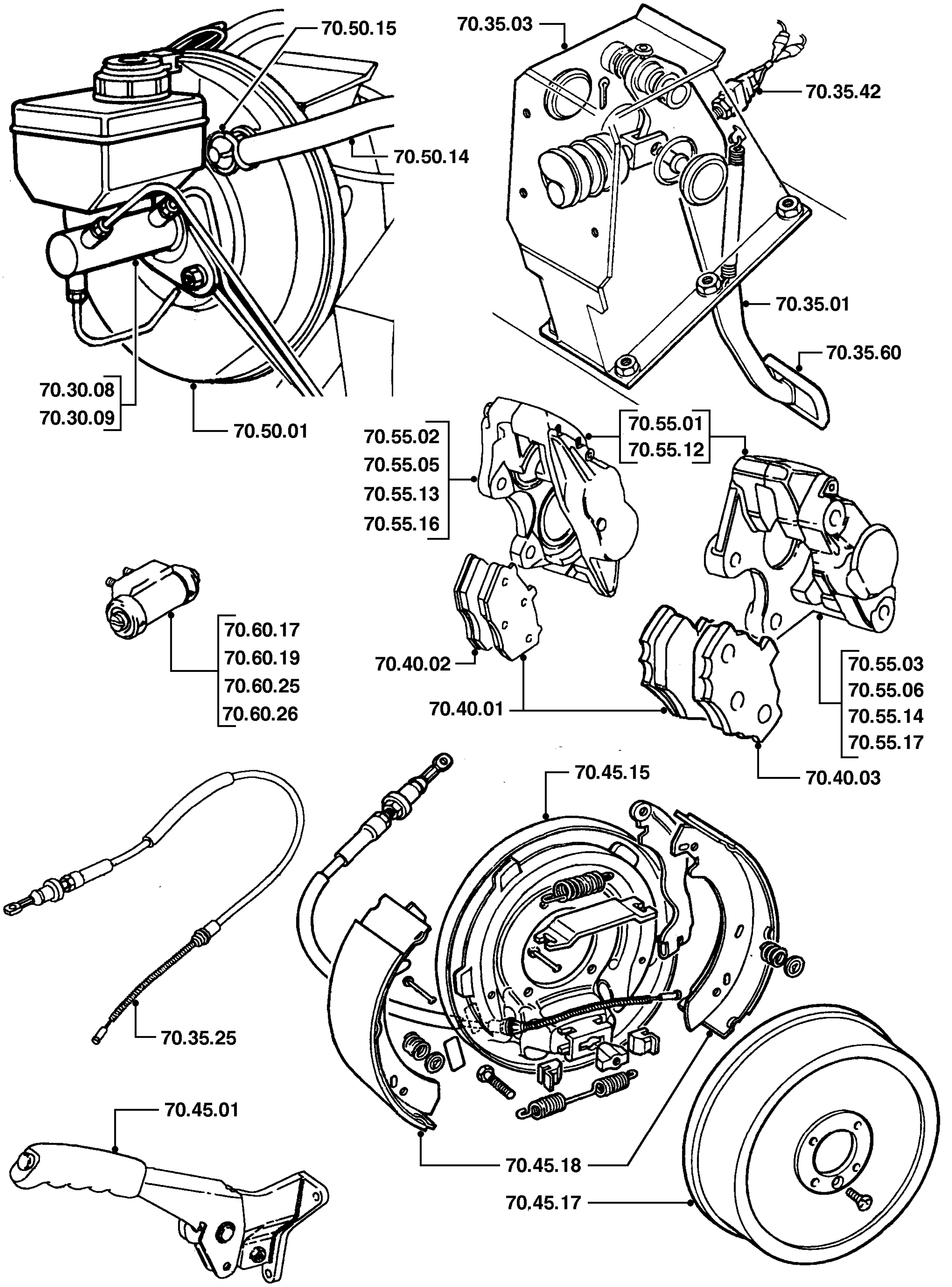
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70.50.15
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70.35.25
70.45.01
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DRT49

(Operations include bleeding brakes where necessary)

| | | | |
|---|---|---|---|
| **70.55** | **WHEEL/BRAKE CALIPERS** | | |
| 70.55.01 | Calipers - vehicle set - replace | 01.80 | * |
| 70.55.02 | Caliper - front - each - replace | 00.60 | 6C3 |
| 70.55.03 | Caliper - rear - each - replace | 00.60 | 6D3 |
| 70.55.05 | Calipers - front - set - replace | 01.00 | 6C3 |
| 70.55.06 | Calipers - rear - set - replace | 01.00 | 6D3 |
| 70.55.12 | Calipers - vehicle set - overhaul | 03.10 | * |
| 70.55.13 | Caliper - front - each - overhaul | 01.00 | 6C3 |
| 70.55.14 | Caliper - rear - each - overhaul | 00.90 | 6D3 |
| 70.55.16 | Calipers - front - set - overhaul | 01.80 | 6C3 |
| 70.55.17 | Calipers - rear - set - overhaul | 01.50 | 6D3 |
| **70.60** | **WHEEL CYLINDERS** | | |
| 70.60.17 | Wheel cylinders - rear - both sides - replace | 02.00 | 6F4 |
| 70.60.19 | Wheel cylinder - rear - each - replace | 01.30 | 6F4 |
| 70.60.25 | Wheel cylinders - rear - both sides - overhaul | 02.40 | 6F4 |
| 70.60.26 | Wheel cylinder - rear - each - overhaul | 01.60 | 6F4 |

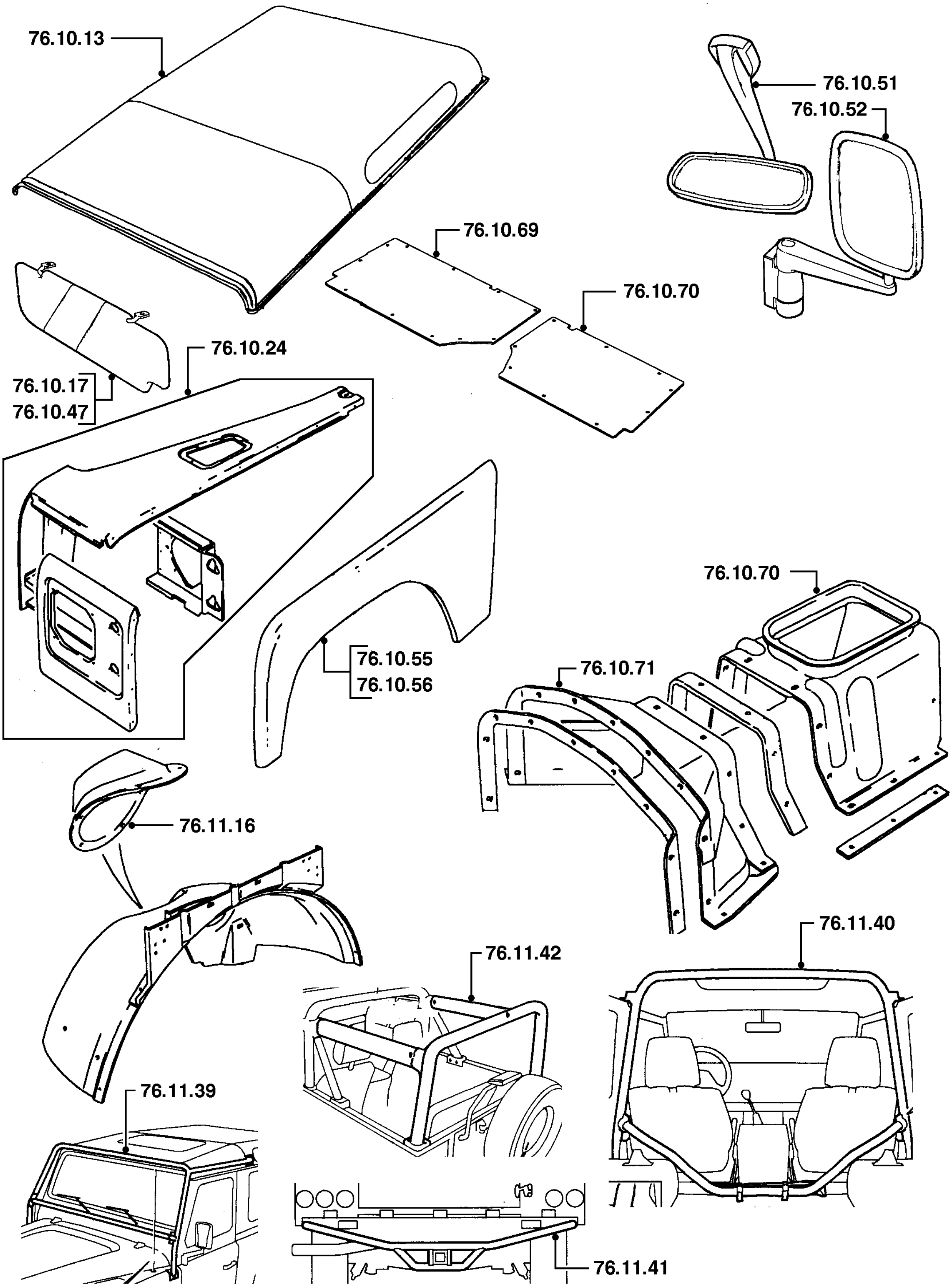
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70.50.15
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70.45.01
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DRT49

| | | | |
|---|---|---|---|
| **76.10** | **BODY - GENERAL** | | |
| 76.10.13 | Panel - roof - replace | 05.70 | 9A2 |
| 76.10.17 | Sun visors - pair - replace | 00.20 | 8S4 |
| 76.10.24 | Fender - front - LH/each - remove for access & reinstall | 02.80 | 9A3 |
| 76.10.47 | Sun visor - each - replace | 00.20 | 8S4 |
| 76.10.51 | Mirror - interior - replace | 00.20 | 8S3 |
| 76.10.52 | Mirror - exterior - each - replace | 00.60 | 9P1 |
| 76.10.55 | Panel - fender outer - front - RH - replace | 02.10 | 9T5 |
| 76.10.56 | Panel - fender outer - front - LH - replace | 02.50 | 9T5 |
| 76.10.63 | Panel - fender inner - front - LH - replace | 02.30 | |
| 76.10.64 | Panel - fender inner - front - RH - replace | 02.10 | |
| 76.10.68 | Panel - front floor - passenger side - replace | 00.70 | 9B2 |
| 76.10.69 | Panel - front floor - drivers side - replace | 00.70 | |
| 76.10.70 | Panel - cover - transmission - replace | 00.80 | 8E3 |
| 76.10.71 | Panel - cover - transmission bell housing - replace | 00.50 | 8E3 |
| 76.10.92 | Cross member - chassis - remove and reinstall | 01.50 | 5A3 |
| **76.11** | **BODY - GENERAL (cont.)** | | |
| 76.11.15 | Acoustic cover - transmission - LH side - replace | 01.00 | |
| 76.11.16 | Turret cover - damper - front - both sides - replace | 00.40 | |
| 76.11.28 | Panel - mounting - inner door - front - remove for access & reinstall | 00.70 | |
| 76.11.39 | Roll-over bar - exterior - replace | 00.60 | |
| 76.11.40 | Roll-over bar - interior - replace | 02.30 | |
| 76.11.41 | Tow bar - replace | 00.50 | 5B3 |
| 76.11.42 | Roll-over bar - interior - rear - replace | 02.10 | |

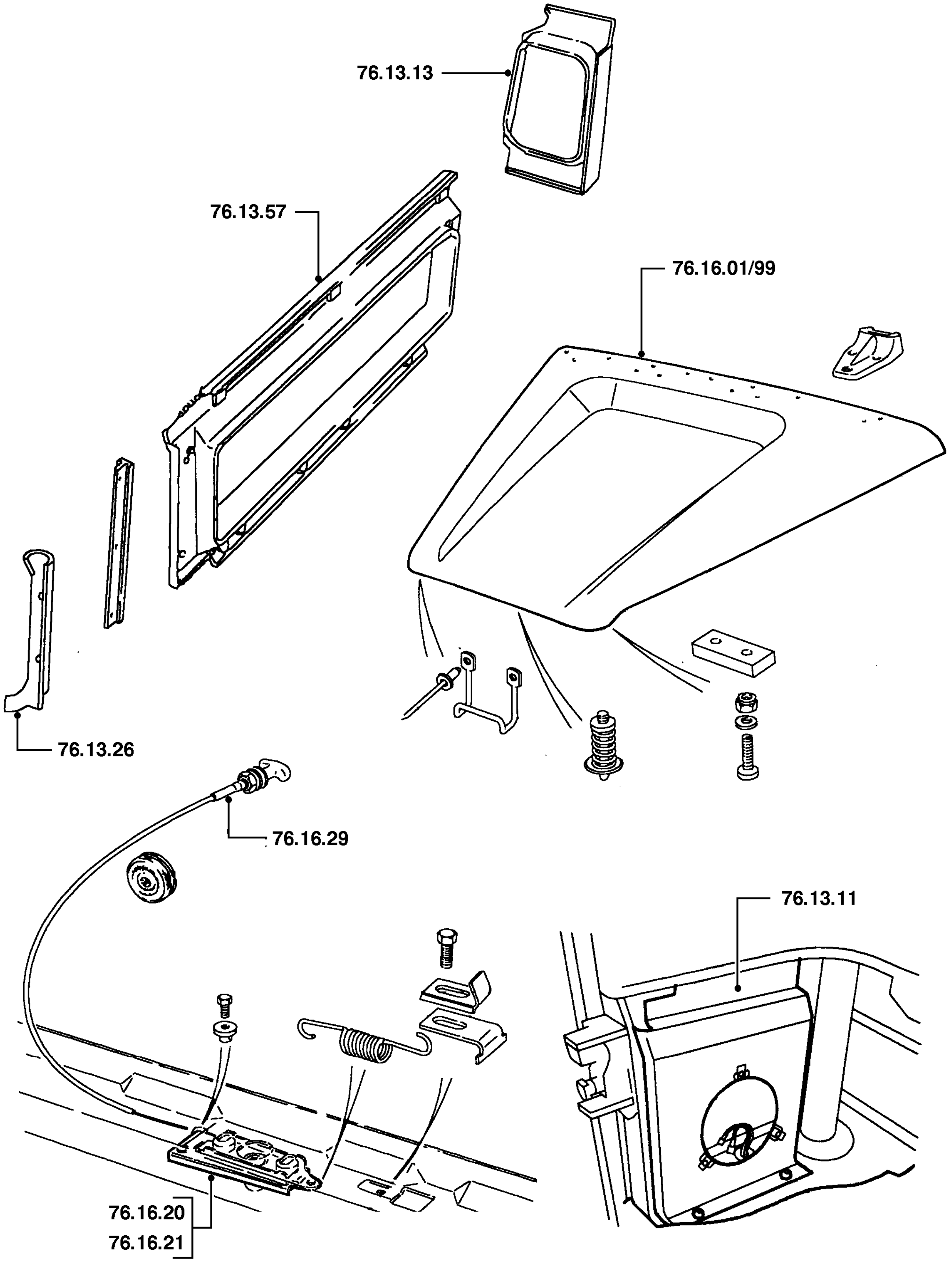
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76.10.17
76.10.47
76.10.70
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76.10.56
76.10.71
76.11.16
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76.11.42
76.11.39
76.11.41

DRT7

| | | | |
|---|---|---|---|
| **76.13** | **BODY TRIM INTERIOR** | | |
| 76.13.11 | Trim casing - radio speaker - rear - replace................................. . | 00.40 | |
| 76.13.13 | Trim casing - rear quarter - upper - replace................................. . | 00.20 | |
| 76.13.26 | Trim finisher - 'A' pillar - upper - replace ...................................... . | 00.20 | 8D3 |
| 76.13.57 | Trim casing - body side - rear - LH/each - replace. ...................... . | 00.80 | |
| | | | |
| **76.16** | **HOOD & LATCHES** | | |
| 76.16.01/99 | Hood - remove for access & reinstall........................................... . | 00.50 | 9C8 |
| 76.16.20 | Latch(s) - adjust.............................................................................. . | 00.40 | * |
| 76.16.21 | Latch - replace................................................................................. . | 00.60 | 8W9 |
| 76.16.29 | Cable/rod - latch control - replace ................................................ . | 00.50 | 8W3 |

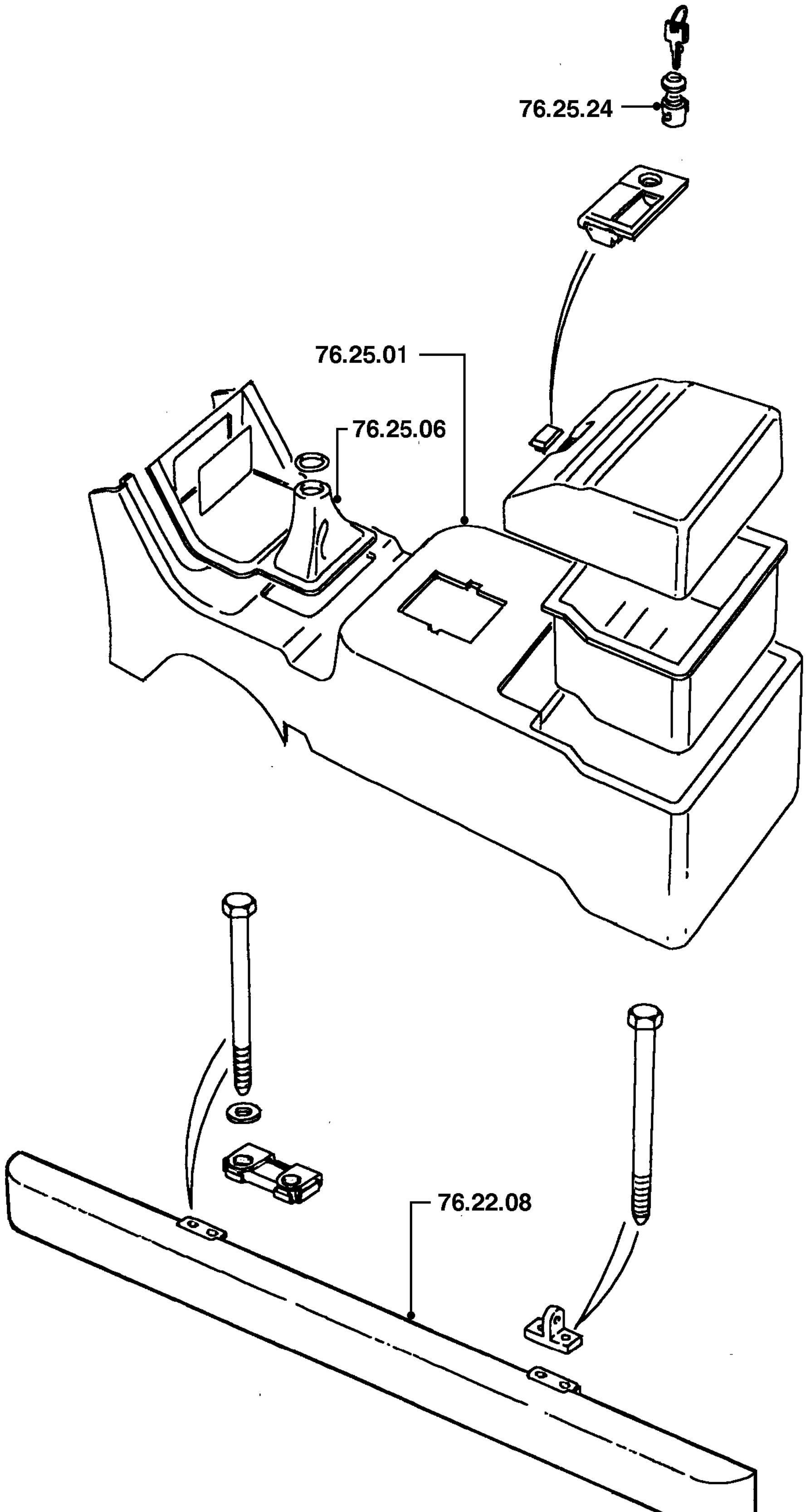
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76.13.13
76.13.57
76.16.01/99
76.13.26
76.16.29
76.13.11
76.16.20
76.16.21

DRT8

| | | | |
|---|---|---|---|
| **76.22** | **BUMPERS** | | |
| 76.22.08 | Bumper assembly - front - replace | 00.30 | 9M1 |
| **76.25** | **CONTROL PANELS & CONSOLES** | | |
| 76.25.01 | Console assembly - front/center/upper - replace | 00.40 | 8E3 |
| 76.25.06 | Boot - gear shift lever - replace | 00.20 | 8E4 |
| 76.25.24 | Lock - glove box lid - replace. | 00.20 | 8W5 |

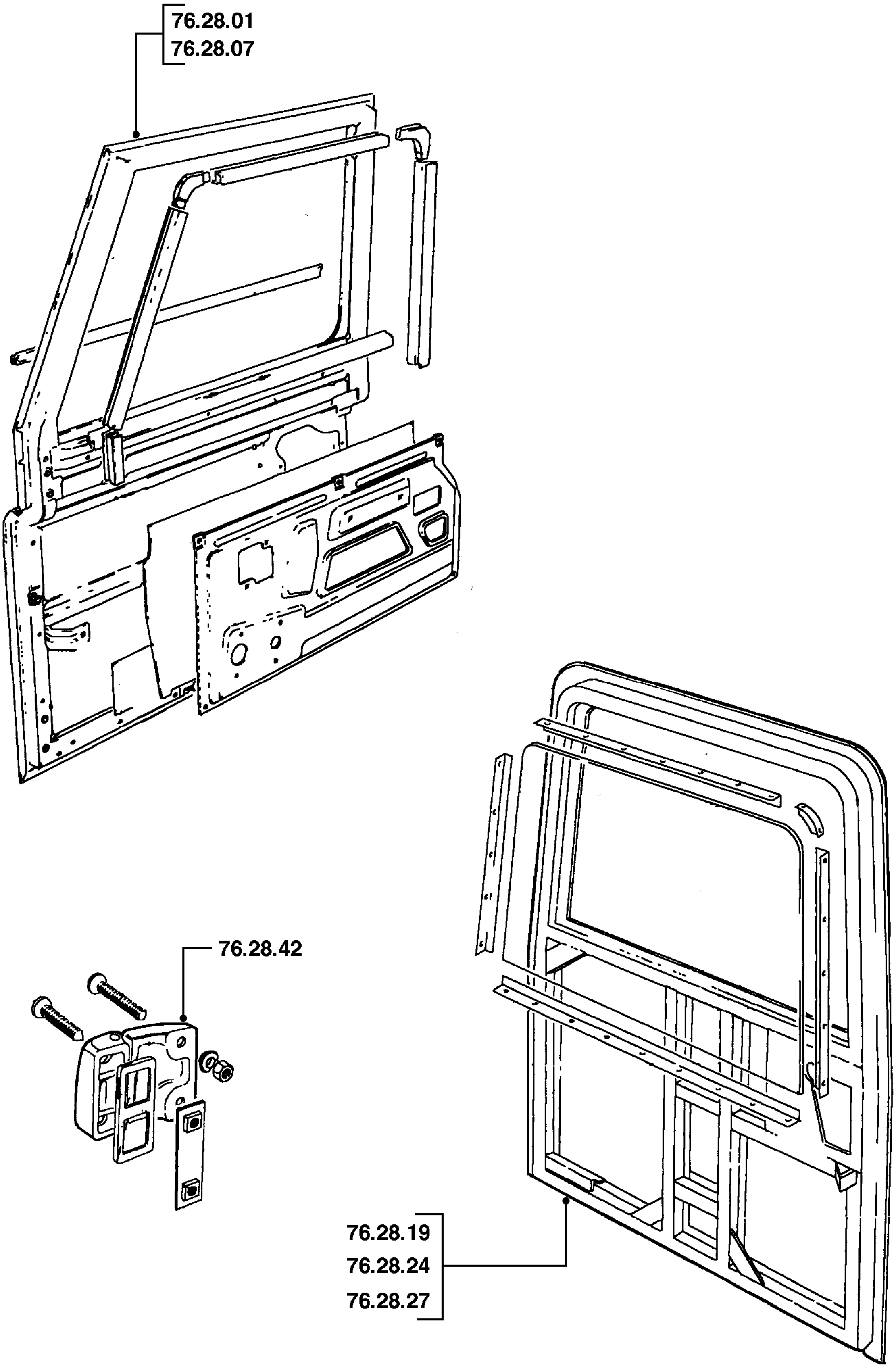
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DRT9

| | | | |
|---|---|---|---|
| **76.28** | **DOORS** | | |
| 76.28.01 | Door assembly - front - each - replace ........................................ . | 02.70 | 9C1 |
| 76.28.07 | Door - front - align on hinges (includes adjust striker) .................. . | 00.70 | 9F1 |
| 76.28.19 | Door - tail - assembly - LH/single - replace .................................. . | 04.00 | |
| 76.28.24 | Door(s) - tail - adjust on striker(s) ................................................ . | 00.50 | 8U2 |
| 76.28.27 | Door - tail - RH - align on hinges .................................................. . | 00.80 | 9F2 |
| 76.28.42 | Hinges - side door - front/single/upper - pair - replace.................. . | 01.40 | 9F1 |

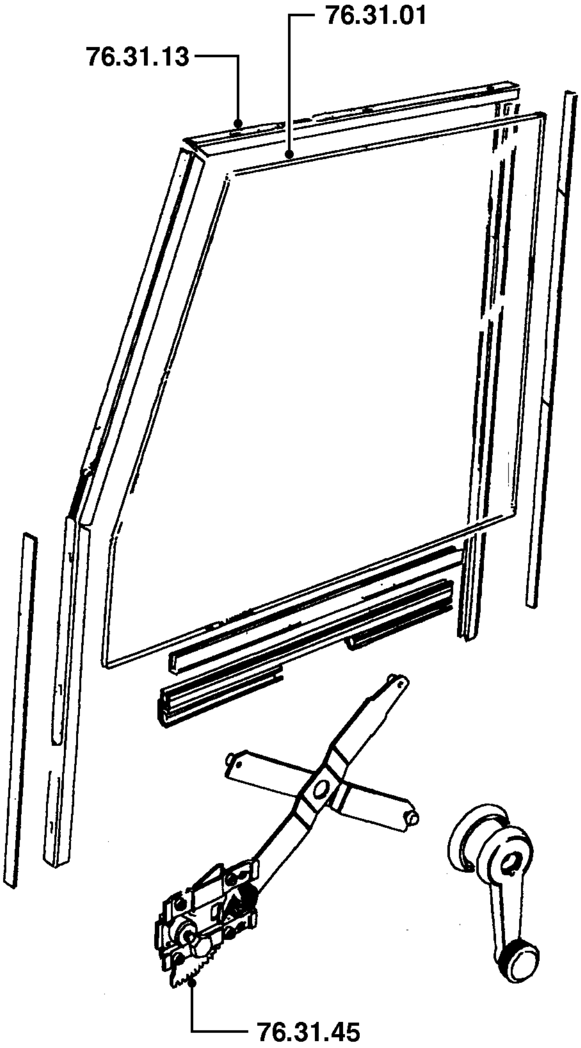
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**W - VIBRATION/OUT OF BALANCE**
**X - BRAKE PULL/SURFACE DAMAGE**
**Z - INOPERATIVE**

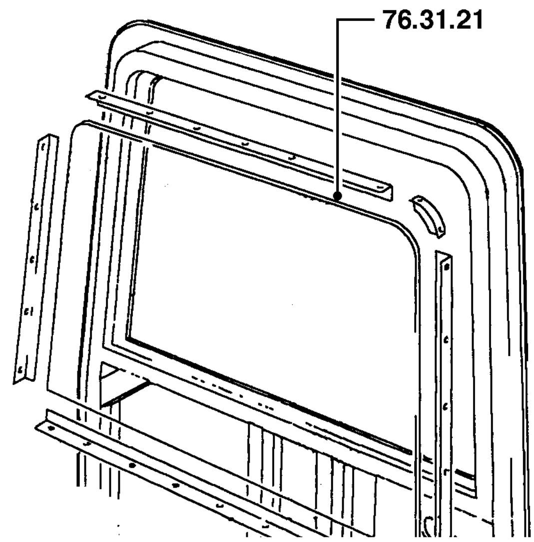


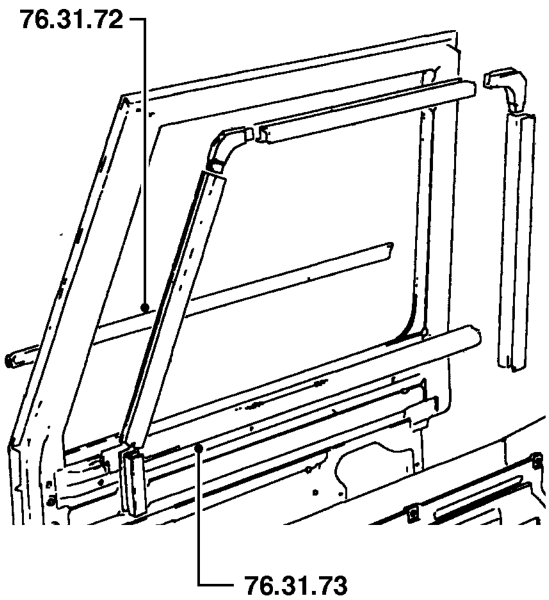

DRT10

| | | | |
|---|---|---|---|
| **76.31** | **DOOR GLASSES, FRAMES & SEALS** | | |
| | **(for electrically operated window switches see 86.25)** | | |
| 76.31.01 | Glass - front door - replace ........................................................ . | 01.10 | 8G3 |
| 76.31.13 | Rubber/felt - glass channel - front door - replace. ........................ . | 01.50 | 8F8 |
| 76.31.21 | Glass - tail door - single - replace ............................................... . | 01.70 | 8G2 |
| 76.31.45 | Glass regulator - front door - replace........................................... . | 00.70 | 8F1 |
| 76.31.72 | Weather strip - front door glass - exterior - replace ...................... . | 00.20 | |
| 76.31.73 | Weather strip - front door glass - interior - replace ...................... . | 00.40 | |

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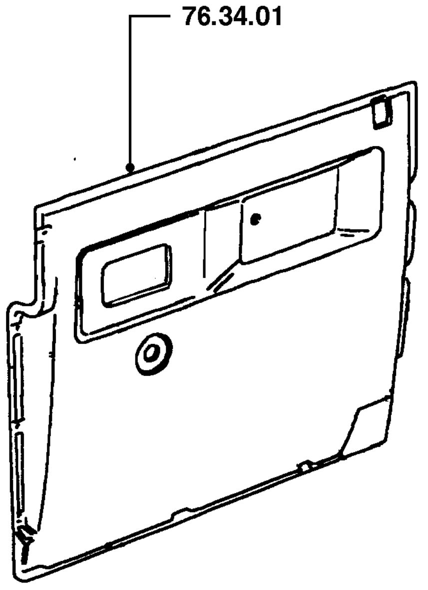



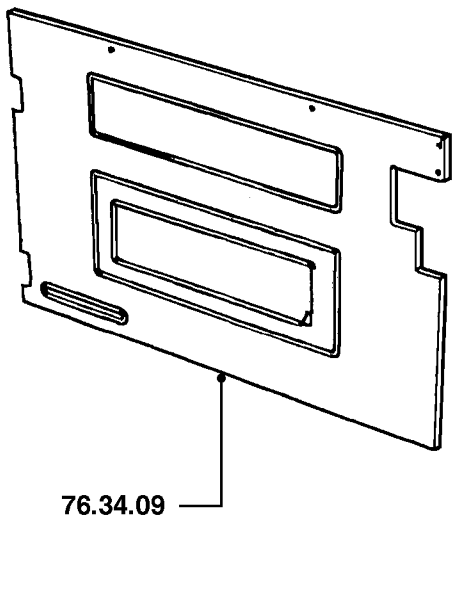




DRT11

| | | | |
|---|---|---|---|
| **76.34** | **DOOR INTERIOR TRIM** | | |
| 76.34.01 | Trim casing - front door - replace................................................. . | 00.40 | 8C6 |
| 76.34.01/99 | Trim casing - front door - remove for access & reinstall .............. . | 00.40 | * |
| 76.34.09 | Trim pad - tail door - replace......................................................... . | 00.40 | 8C6 |

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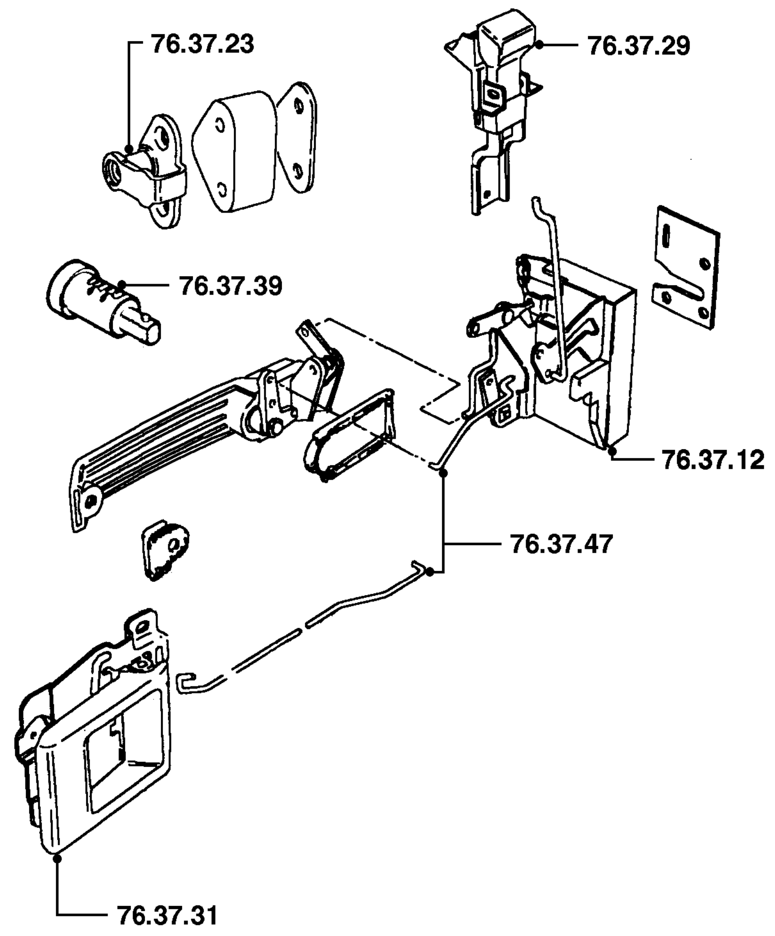


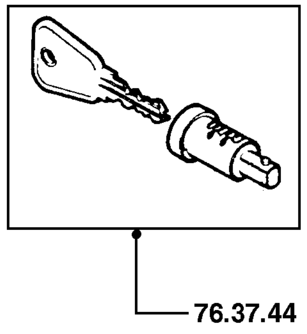



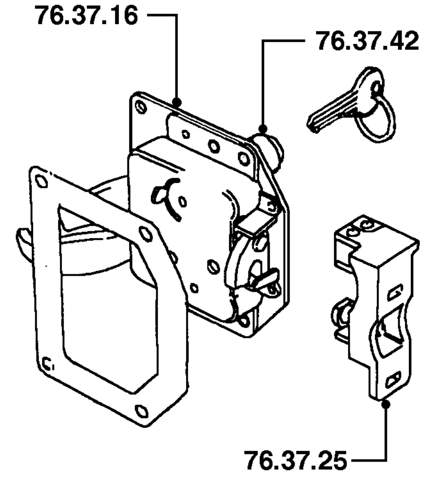

DRT12

| | | | |
|---|---|---|---|
| **76.37** | **DOOR LOCKS & LATCHES** | | |
| | **(for electrically operated locks see 86.26)** | | |
| 76.37.12 | Latch - front door - replace .......................................................... . | 01.40 | 8U1 |
| 76.37.16 | Latch - tail door - replace.............................................................. . | 00.50 | 8V1 |
| 76.37.23 | Striker plate - front door - replace - includes adjustment.............. . | 00.60 | 8U2 |
| 76.37.25 | Striker plate - tail door - replace - includes adjustment ................ . | 00.60 | 8U2 |
| 76.37.27 | Door - front or rear - adjust on striker. .......................................... . | 00.50 | 8U2 |
| 76.37.29 | Lever - remote control locking - front door - replace .................... . | 00.40 | 8U5 |
| 76.37.31 | Handle linkage - front door - replace ............................................ . | 00.50 | 8U4 |
| 76.37.39 | Lock cylinder - front door - replace .............................................. . | 00.60 | 8U0 |
| 76.37.42 | Lock cylinder - taildoor - replace .................................................. . | 00.50 | 8V0 |
| 76.37.44 | Lock cylinders - vehicle set - replace............................................ . | 01.40 | 8V0 |
| 76.37.47 | Mechanism - front door - adjust.................................................... . | 00.70 | 8U7 |

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**X - BRAKE PULL/SURFACE DAMAGE**
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76.37.23
76.37.29
76.37.39
76.37.12
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76.37.31

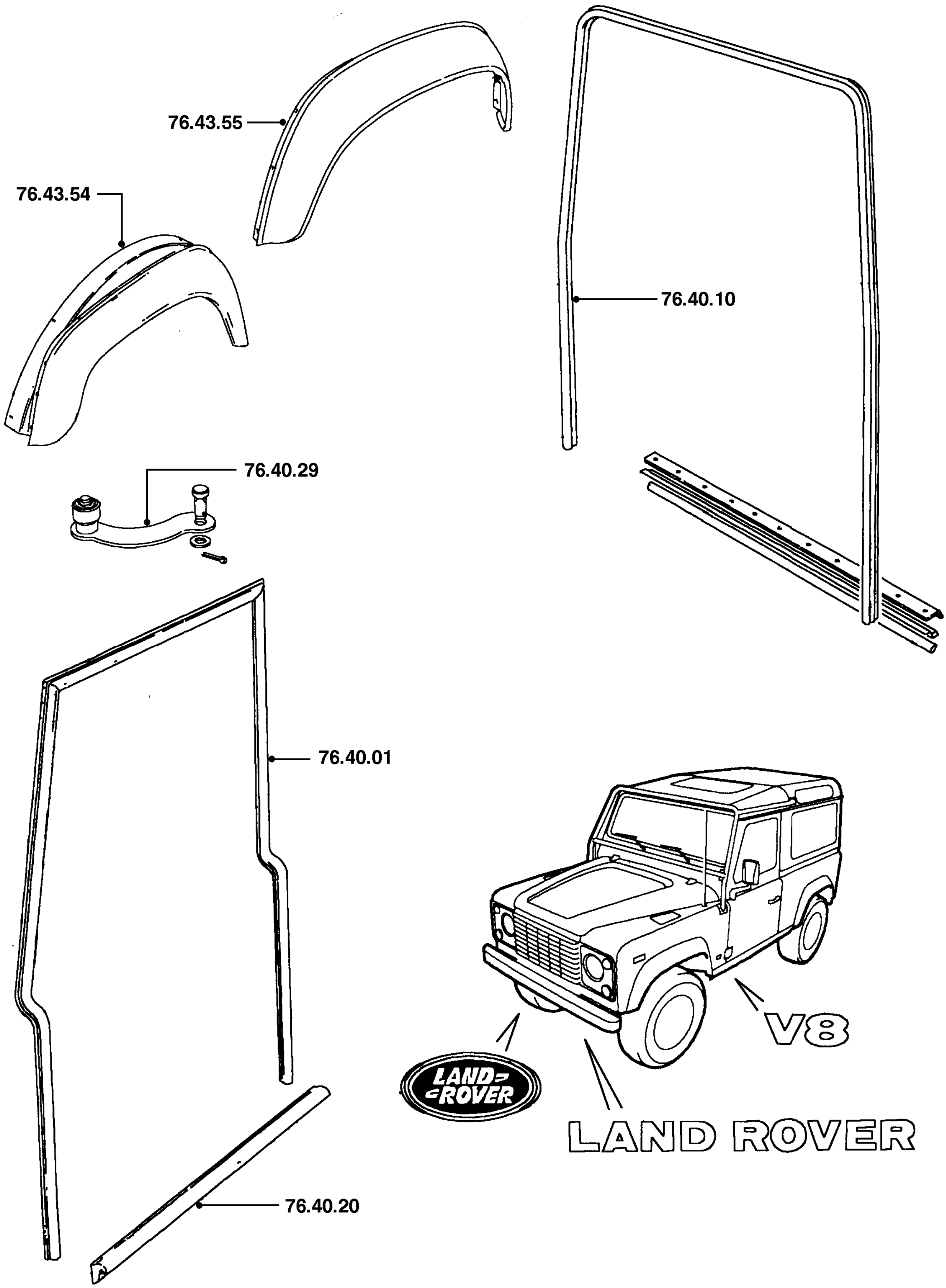

76.37.44


76.37.16
76.37.42
76.37.25

DRT13

| | | | |
|---|---|---|---|
| **76.40** | **DOOR SEALS & CHECK STRAPS** | | |
| 76.40.01 | Seal - front door - replace ............................................................ . | 00.20 | 9H1 |
| 76.40.10 | Seal - tailgate/tail door - aperture - replace .................................. . | 00.40 | 9H1 |
| 76.40.20 | Door seal - front door - lower - replace. ........................................ . | 00.20 | 9H1 |
| 76.40.29 | Check strap - front door - replace ................................................ . | 00.50 | 9F7 |
| **76.43** | **EXTERIOR MOULDINGS** | | |
| 76.43.54 | Finisher/extension - front wheel arch - each - replace .................. . | 00.50 | 9N5 |
| 76.43.55 | Finisher/extension - rear wheel arch - LH/each/arch set - replace . | 00.30 | 9N5 |
| 76.43.72 | Wide coach line/decal - each - per panel - replace....................... . | 00.40 | - |
| 76.43.72/01 | Wide coach line/decal - extra each - per panel - replace.............. . | 00.30 | - |

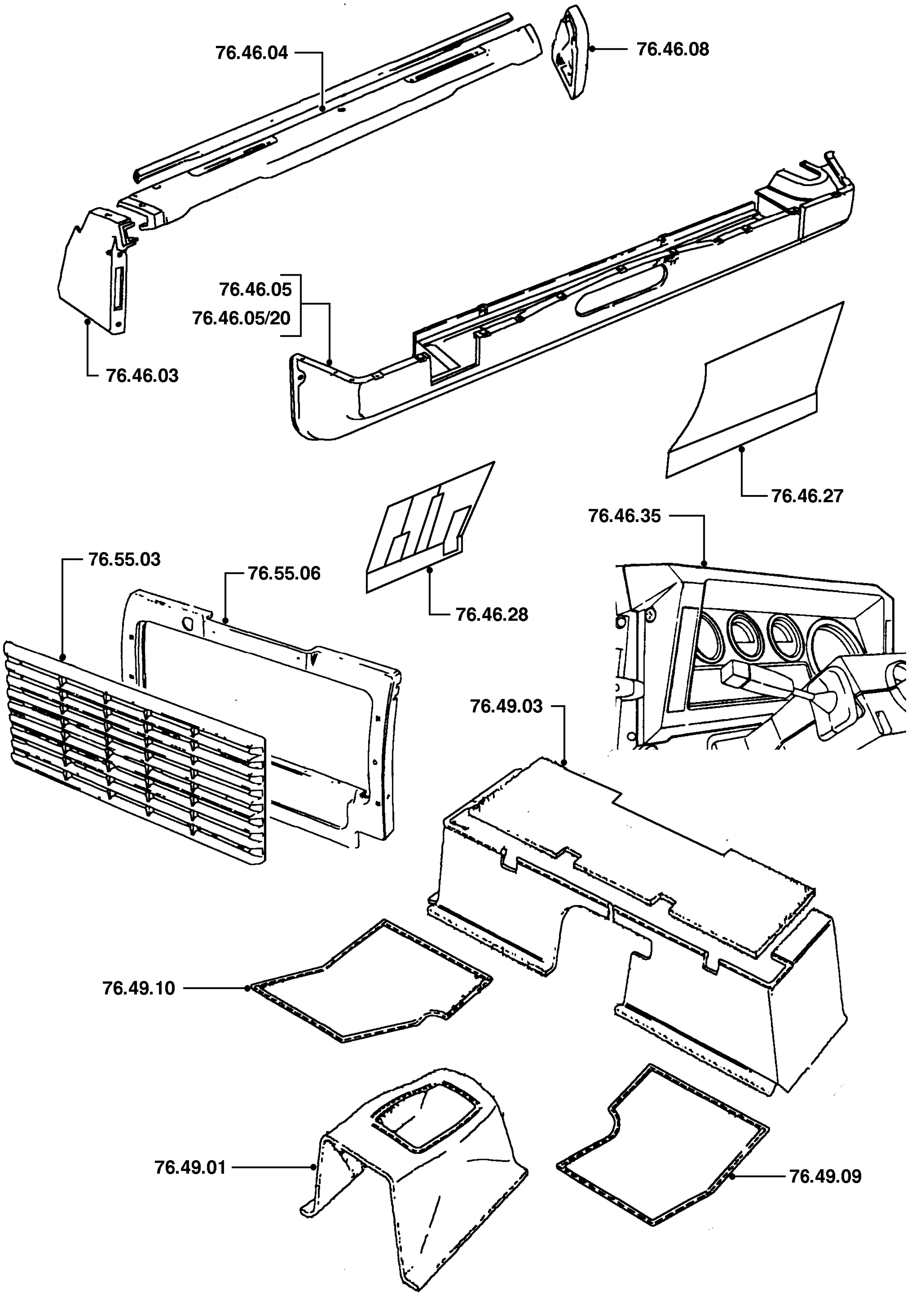
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76.43.55
76.43.54
76.40.10
76.40.29
76.40.01
V8
LAND ROVER
LAND ROVER
76.40.20

DRT14

| | | | |
|---|---|---|---|
| **76.46** | **DASHBOARD** | | |
| 76.46.03 | Panel - dashboard side - replace | 00.40 | 8C3 |
| 76.46.04 | Top rail/crash roll - complete - replace. | 00.70 | |
| 76.46.05 | Panel - lower dashboard - replace | 02.40 | 8C3 |
| 76.46.05/20 | Panel - lower dashboard - replace - air conditioning fitted | 02.90 | 8C3 |
| 76.46.08 | Panel - dashboard side - passenger side - replace | 00.20 | 8C2 |
| 76.46.27 | Panel - closing - replace | 00.10 | |
| 76.46.28 | Panel - closing - driver's side - replace | 00.20 | |
| 76.46.35 | Surround - instrument pack - replace | 00.60 | 8E2 |
| **76.49** | **FLOOR COVERINGS** | | |
| 76.49.01 | Carpet - transmission cover - front/each - replace. | 00.50 | 8C1 |
| 76.49.03 | Carpet - rear - replace | 00.30 | 8C1 |
| 76.49.09 | Carpet - LH - replace | 00.20 | 8C1 |
| 76.49.10 | Carpet - RH - replace | 00.20 | 8C1 |
| 76.49.21 | Carpet - wheel arch - rear - RH - replace | 01.30 | 8C9 |
| 76.49.22 | Carpet - wheel arch - rear - LH - replace | 01.30 | 8C9 |
| **76.55** | **GRILLES** | | |
| 76.55.03 | Grille - front - replace | 00.30 | 9M7 |
| 76.55.06 | Grille panel - radiator/front - remove and reinstall | 00.60 | 9M7 |

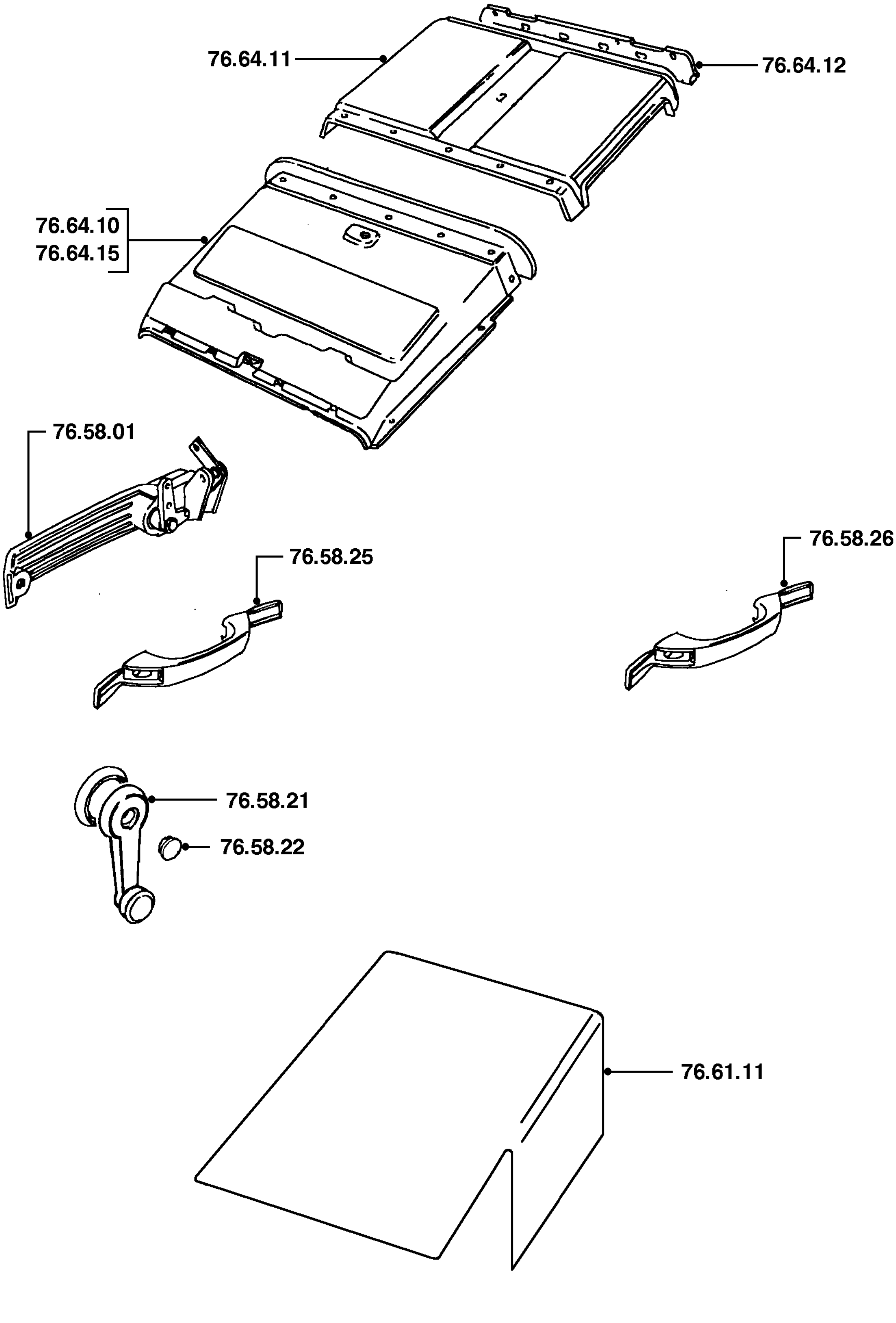
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76.46.04
76.46.08
76.46.05
76.46.05/20
76.46.03
76.46.27
76.46.35
76.46.28
76.55.03
76.55.06
76.49.03
76.49.10
76.49.01
76.49.09

DRT15

| | | | |
|---|---|---|---|
| **76.58** | **HANDLES, PULLS & COAT HANGERS** | | |
| 76.58.07 | Handle - outside - front door - replace .......................................... . | 00.60 | 8U6 |
| 76.58.21 | Handle - glass regulator - replace ................................................ . | 00.10 | 8F2 |
| 76.58.22 | Finisher - front door - inside handle - replace .............................. . | 00.20 | 8U9 |
| 76.58.25 | Door pull - replace ......................................................................... . | 00.20 | 8S9 |
| 76.58.26 | Door pull - tail door - replace ........................................................ . | 00.20 | 8S9 |
| 76.58.34 | Handle - grab - tail door - replace ................................................ . | 00.20 | 8S9 |
| **76.61** | **HARD, SOFT TOPS & TONNEAU COVERS** | | |
| 76.61.11 | Outer cover - canopy - replace. .................................................... . | 01.10 | 9E1 |
| **76.64** | **HEADLININGS** | | |
| 76.64.10 | Headlining - front - replace ......................................................... . | 01.00 | 8C5 |
| 76.64.11 | Headlining - rear - replace ........................................................... . | 02.80 | 8C5 |
| 76.64.12 | Finisher - headlining - rear - replace ............................................ . | 00.40 | 8C5 |
| 76.64.15 | Headlining - sun/sliding roof fitted - replace.................................. . | 01.00 | 8C5 |

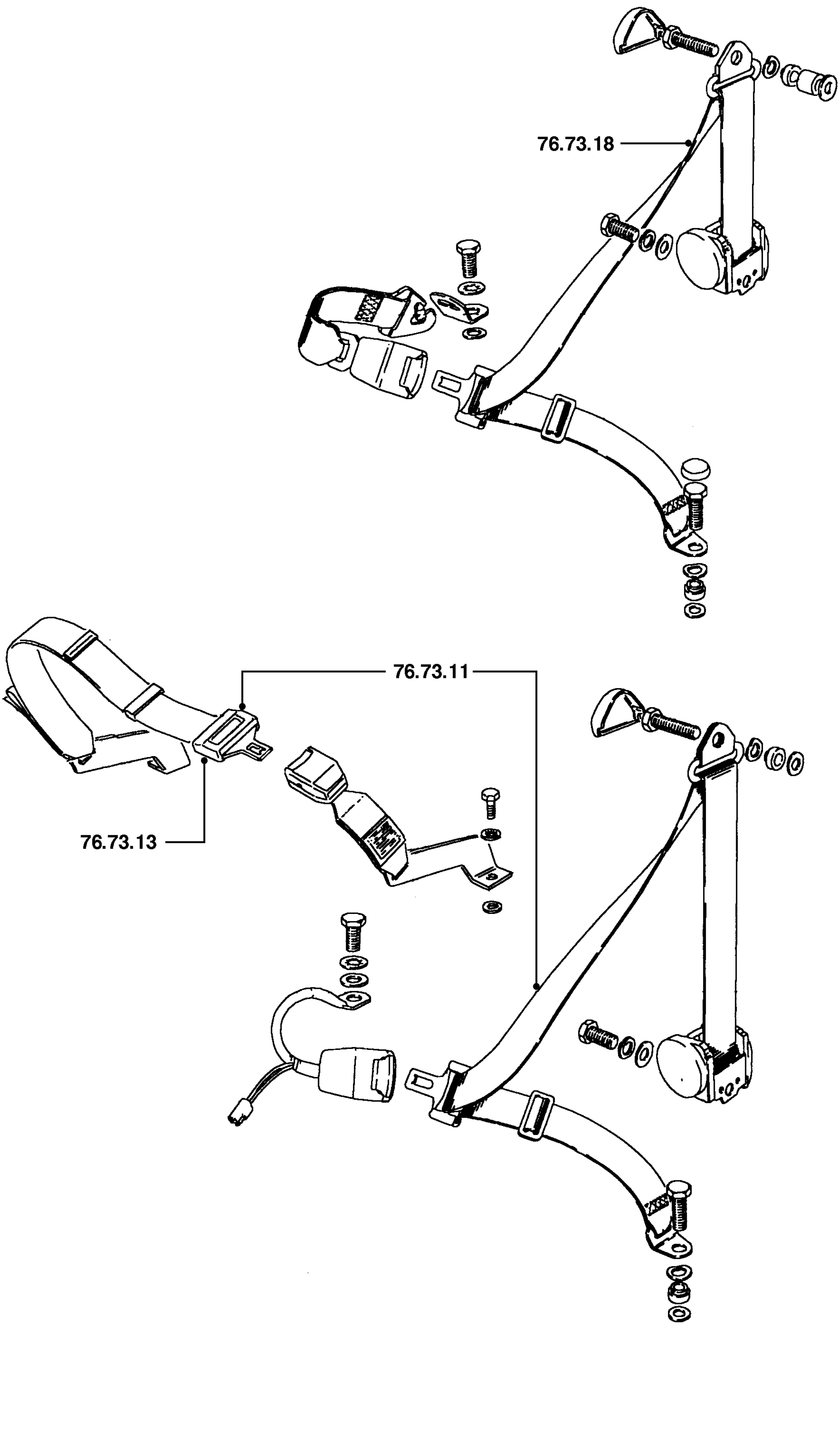
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76.64.11
76.64.12
76.64.10
76.64.15
76.58.01
76.58.25
76.58.26
76.58.21
76.58.22
76.61.11

DRT16

| | | | |
|---|---|---|---|
| **76.73** | **SEAT BELTS & RESTRAINT SYSTEMS** | | |
| 76.73.11 | Non passive belt assemblies - front - set - replace ...................... . | 00.50 | 8P1 |
| 76.73.13 | Non passive belt assembly - front - each - replace....................... . | 00.30 | 8P1 |
| 76.73.18 | Seat belt - side - rear - replace ..................................................... . | 00.20 | 8P5 |

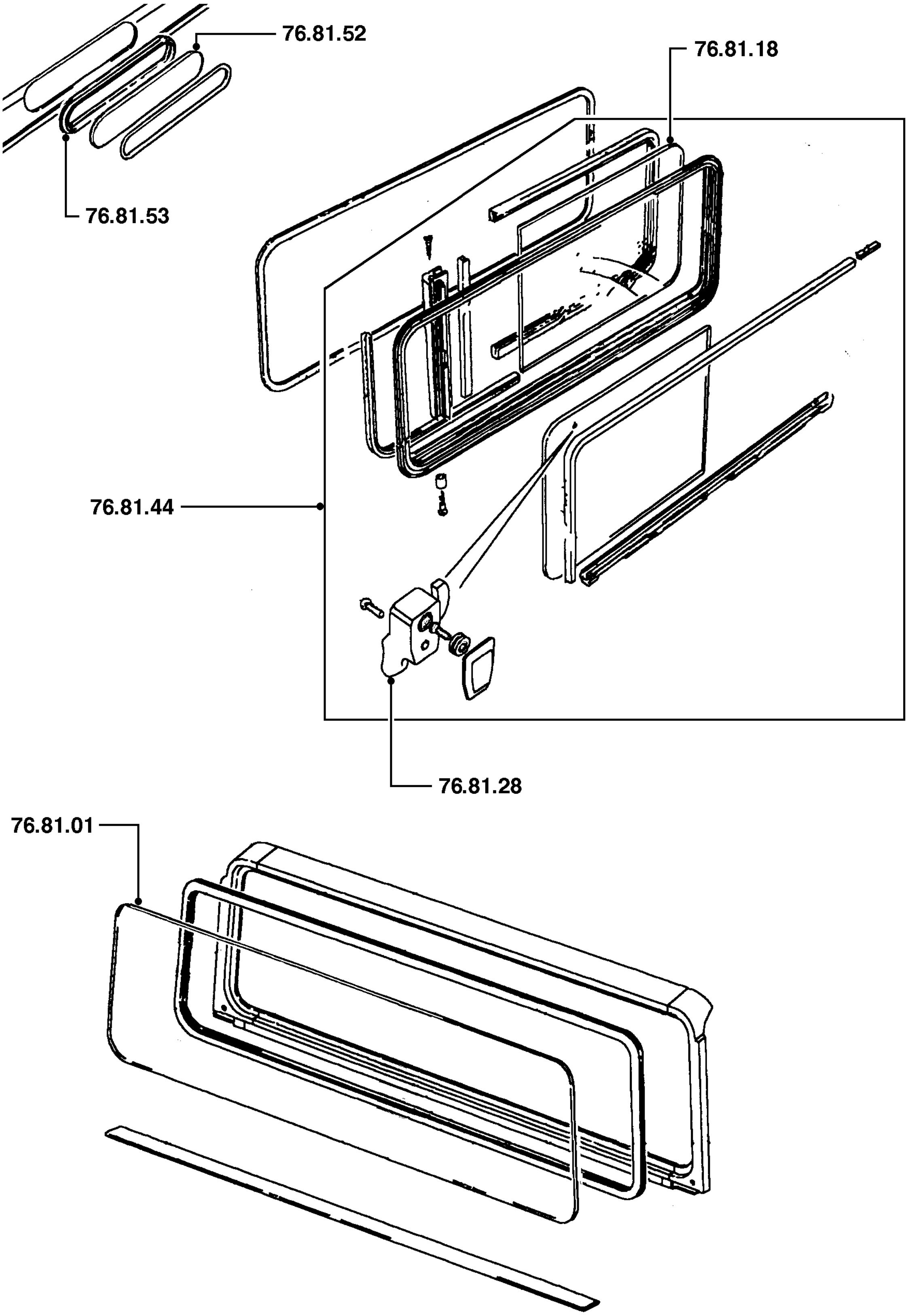
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DRT17

| | | | |
|---|---|---|---|
| **76.81** | **WINDSHIELD & BODY GLASSES** | | |
| 76.81.01 | Glass/sealing rubber - windshield - replace................................. . | 01.00 | 8G1 |
| 76.81.18 | Glass - body side - rear - replace ................................................ . | 00.70 | 8G3 |
| 76.81.28 | Catch - side screen window - sliding - replace.............................. . | 00.20 | 8F3 |
| 76.81.44 | Body side glass - assembly - replace .......................................... . | 00.60 | 8G3 |
| 76.81.52 | Glass - alpine light - replace. ........................................................ . | 00.60 | 8G4 |
| 76.81.53 | Sealing rubber - alpine light - replace .......................................... . | 00.60 | |

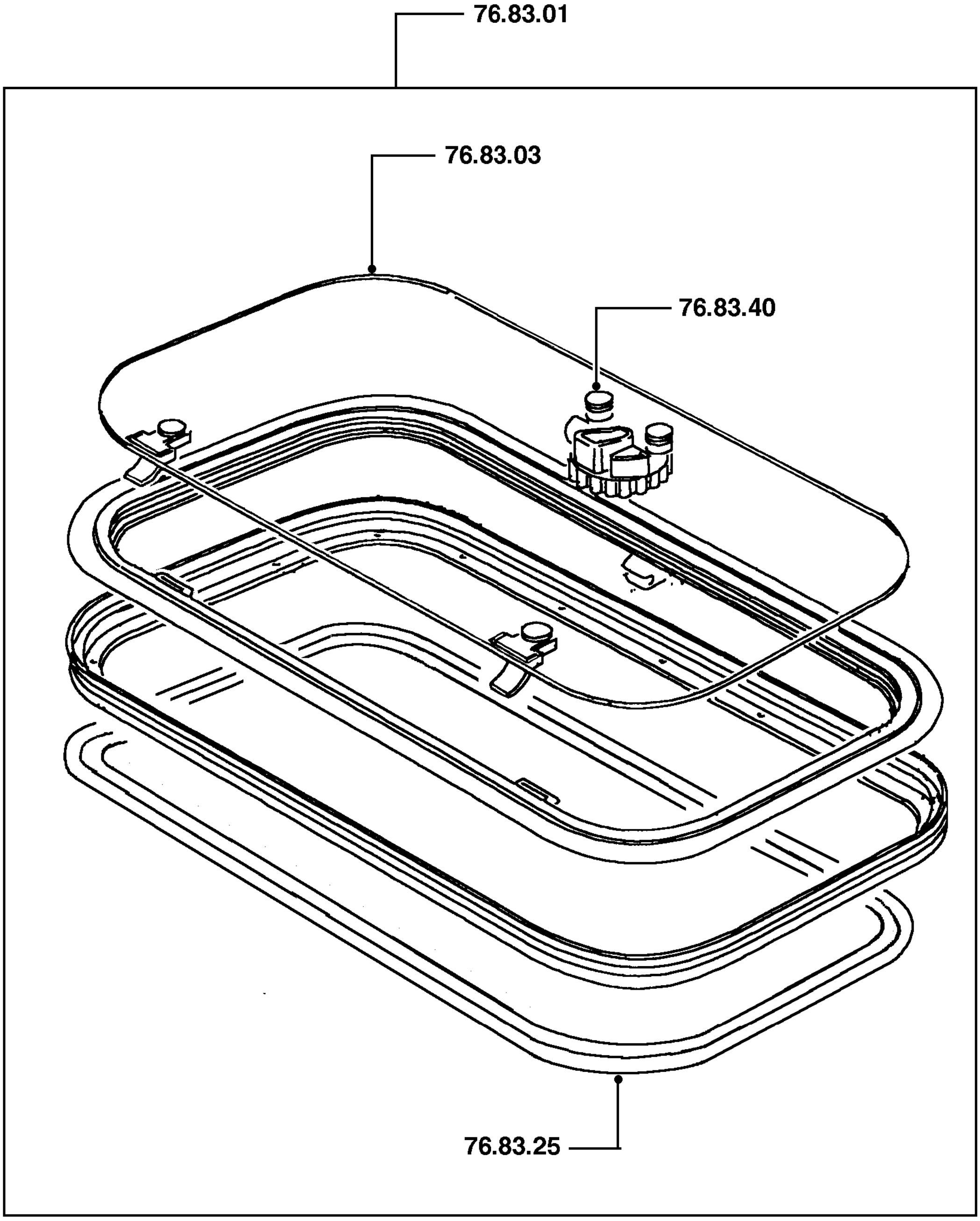
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DRT18

| | | | |
|---|---|---|---|
| **76.83** | **SLIDING & SUNROOFS (Mechanically operated)** | | |
| 76.83.01 | Sun/sliding roof - complete - front - replace................................... . | 00.90 | * |
| 76.83.03 | Glass panel - sun/sliding roof - front - replace .............................. . | 00.30 | 9D1 |
| 76.83.25 | Finisher - flange to headlining - front - replace ............................ . | 00.40 | |
| 76.83.40 | Handle - operating - sun/sliding roof - front - replace.................... . | 00.30 | 7M8 |

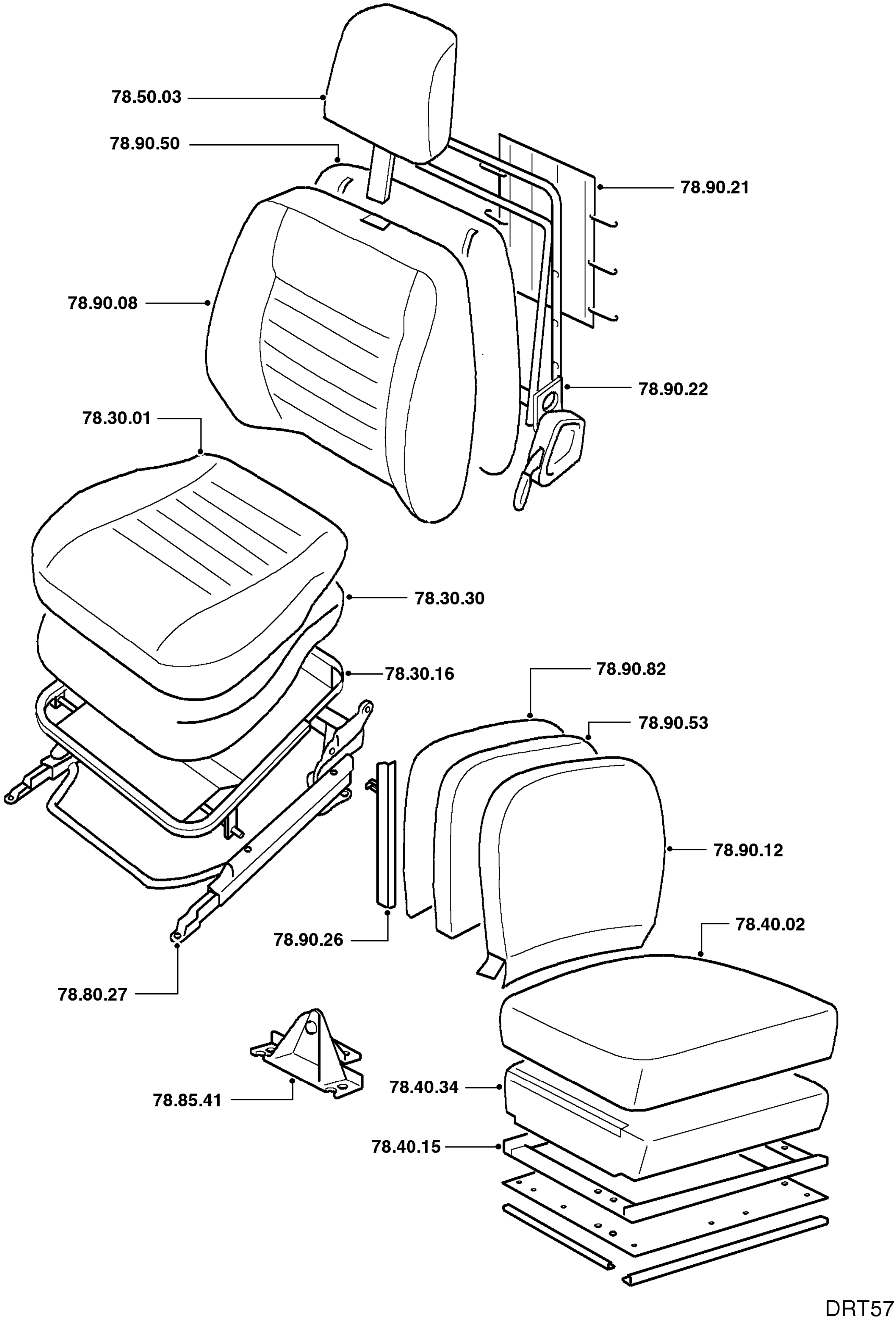
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DRT50

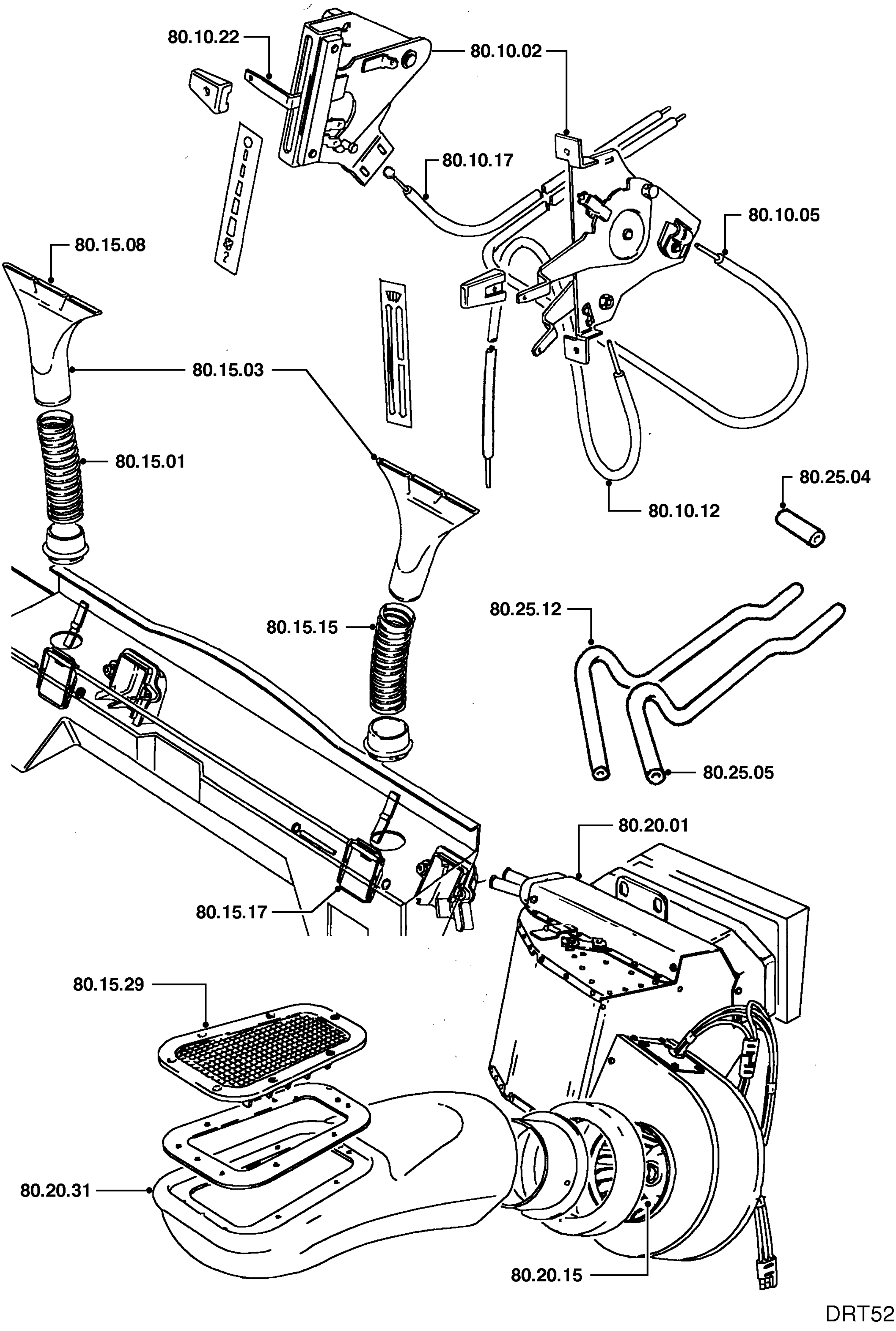
| | | | |
|---|---|---|---|
| **78.10** | **ACCESS - (REMOVE & REINSTALL SEAT ASSEMBLIES)** | | |
| 78.10.18/99 | Cushion - rear seat - side - remove for access & reinstall ............ . | 00.40 | 8H5 |
| 78.10.44/99 | Front seat - remove for access & reinstall .................................... . | 00.20 | 8A4 |
| 78.10.50/99 | Seat back - front seat - remove for access & reinstall .................. . | 00.20 | 8A3 |
| **78.30** | **CUSHIONS - FRONT SEATS** | | |
| 78.30.01 | Cover - one piece - front seat cushion - replace .......................... . | 00.40 | 8B1 |
| 78.30.16 | Frame - front seat cushion - replace ........................................... . | 00.50 | 8A5 |
| 78.30.30 | Pad - one piece - front seat cushion - replace .............................. . | 00.50 | 8A8 |
| **78.40** | **CUSHIONS - REAR & OCCASIONAL SEATS** | | |
| 78.40.02 | Cover - rear seat cushion - side - replace .................................... . | 01.10 | 8H5 |
| 78.40.15 | Frame - rear seat cushion - side - replace.................................... . | 01.10 | 8A6 |
| 78.40.34 | Pad - rear seat cushion - side - replace. ...................................... . | 00.60 | 8A8 |
| 78.40.50 | Pad - rear seat cushion - LH/each - replace ................................ . | 00.40 | 8A8 |
| **78.50** | **HEAD RESTRAINTS - FRONT & REAR SEATS** | | |
| 78.50.03 | Head restraint - front seat - LH/each - replace............................. . | 00.40 | 8B2 |
| **78.80** | **SLIDES & CONTROLS - MANUAL** | | |
| 78.80.27 | Slides - manual - front seat - set - replace.................................... . | 00.60 | 8A1 |
| **78.85** | **SEAT FRAMES & FIXINGS** | | |
| 78.85.41 | Hinges - rear seat - pair - replace ................................................ . | 00.30 | 8A7 |
| **78.90** | **SEAT BACKS - FRONT & REAR SEATS** | | |
| 78.90.08 | Cover - seat back - front seat - replace. ...................................... . | 00.50 | 8B1 |
| 78.90.12 | Cover - seat back - rear seat - side - LH/each - replace .............. . | 00.50 | 8H5 |
| 78.90.21 | Pullmaflex - frame - front seat back - replace .............................. . | 00.60 | |
| 78.90.22 | Frame - seat back - front seat - replace. ...................................... . | 00.70 | 8A5 |
| 78.90.26 | Frame - seat back - rear seat - side - LH/each - replace .............. . | 00.50 | 8A6 |
| 78.90.50 | Pad - seat back - front seat - center - replace .............................. . | 00.60 | 8A2 |
| 78.90.53 | Pad - seat back - rear seat - side - replace .................................. . | 00.50 | 8A8 |
| 78.90.82 | Seat back - rear seat - LH/each - replace .................................... . | 00.30 | 8H4 |

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**Z - INOPERATIVE**


78.50.03
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DRT57

| | | | |
|---|---|---|---|
| **80.10** | **CONTROLS** | | |
| 80.10.02 | Controls - heater - replace | 00.50 | 8M7 |
| 80.10.05 | Cable - heater temperature control - replace | 00.60 | 8M0 |
| 80.10.12 | Cable - air distribution control - replace | 02.50 | 8M0 |
| 80.10.17 | Cable - air recirculation control - replace | 00.50 | 8M0 |
| 80.10.22 | Switch - fan - front heater - replace | 00.40 | 7S2 |
| **80.15** | **DEFOGGERS & VENTILATORS** | | |
| 80.15.01 | Tube - demister - LH - replace. | 00.70 | 8N1 |
| 80.15.03 | Duct - demister - each - replace | 01.10 | 8N1 |
| 80.15.08 | Duct - demister - driver's side - replace | 00.80 | 8N1 |
| 80.15.14 | Outlet - foot level ventilator - each - replace | 00.20 | 8N1 |
| 80.15.15 | Tube - demister - RH - replace. | 01.10 | 8N1 |
| 80.15.17 | Valve - foot level ventilator flap - replace | 02.80 | |
| 80.15.29 | Grille - fresh air intake - passenger side - replace | 00.20 | 9A5 |
| **80.20** | **HEATER UNIT** | | |
| 80.20.01 | Heater unit - replace | 01.40 | 8M1 |
| 80.20.01/20 | Heater unit - replace - air conditioning fitted | 02.40 | 8M1 |
| 80.20.15 | Motor - fan - replace | 01.60 | 7S1 |
| 80.20.17 | Resistor unit - fan motor - replace | 01.40 | 7S0 |
| 80.20.29 | Core - replace | 01.90 | 8M2 |
| 80.20.29/20 | Core - replace - air conditioning fitted. | 02.80 | 8M2 |
| 80.20.31 | Duct - air inlet - replace | 00.40 | 8N1 |
| **80.25** | **PIPES & HOSES** | | |
| 80.25.04 | Hose - thermostat housing to heater return pipe - replace | 00.20 | 2E5 |
| 80.25.05 | Hose - feed - pipe to heater - replace | 00.20 | 2E4 |
| 80.25.12 | Hose - heater to engine return pipe - replace | 00.20 | 2E5 |

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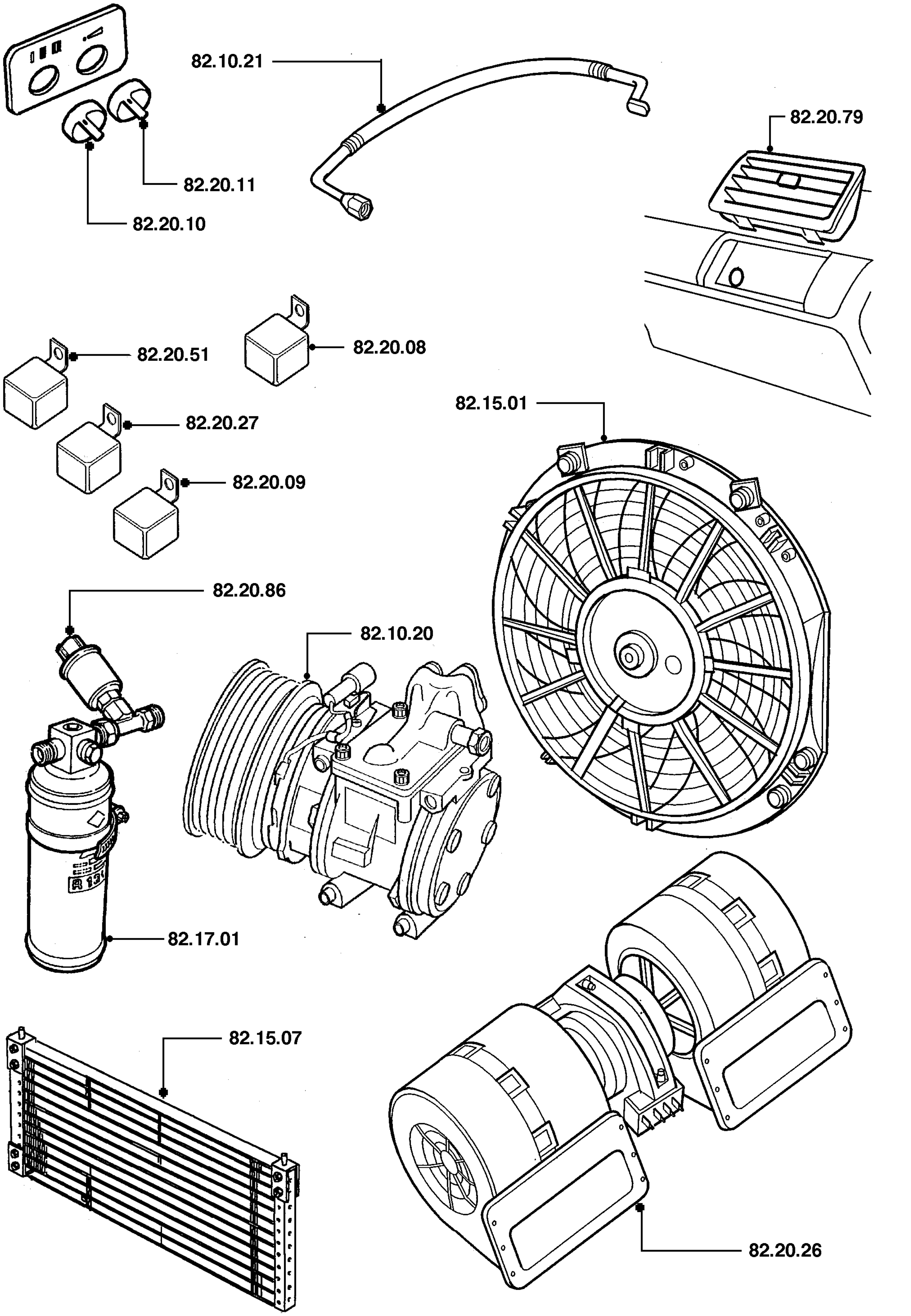

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80.20.31
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DRT52

(Operations DO NOT include depressurize, evacuate, flush & recharge system)

| | | | |
|---|---|---|---|
| **82.10** | **COMPRESSOR & DRIVE** | | |
| 82.10.20 | Compressor - replace. | 00.90 | 8Q1 |
| 82.10.21 | Hose - compressor to condenser - replace. | 01.70 | 8Q5 |
| **82.15** | **CONDENSER** | | |
| 82.15.01 | Motor - condenser fan - replace | 00.70 | 8R9 |
| 82.15.07 | Condenser - replace | 01.30 | 8Q2 |
| **82.17** | **LIQUID RECEIVER/DRIER (ACCUMULATOR)** | | |
| 82.17.01 | Liquid receiver/drier - replace | 00.60 | |
| **82.20** | **CONTROLS** | | |
| 82.20.04 | Switch - pressure - liquid receiver/drier - replace | 00.20 | |
| 82.20.08 | Relay - main - replace | 00.50 | - |
| 82.20.09 | Relay - condenser fan motor - replace | 00.20 | - |
| 82.20.10 | Switch - temperature control - replace | 00.70 | 7S9 |
| 82.20.11 | Switch - air flow control - replace | 00.70 | |
| 82.20.26 | Resistance unit - blower motor - replace. | 00.30 | 8R5 |
| 82.20.27 | Relay - blower motor - replace. | 00.20 | 7S3 |
| 82.20.51 | Relay - compressor magnetic clutch - replace | 00.20 | 7S8 |
| 82.20.74 | Diode - relay - condensor fan motor - replace | 00.20 | |
| 82.20.79 | Motor - vacuum - dashboard duct - each - replace | 00.80 | 8N3 |
| 82.20.86 | Switch - trinary - replace | 00.30 | 8R3 |

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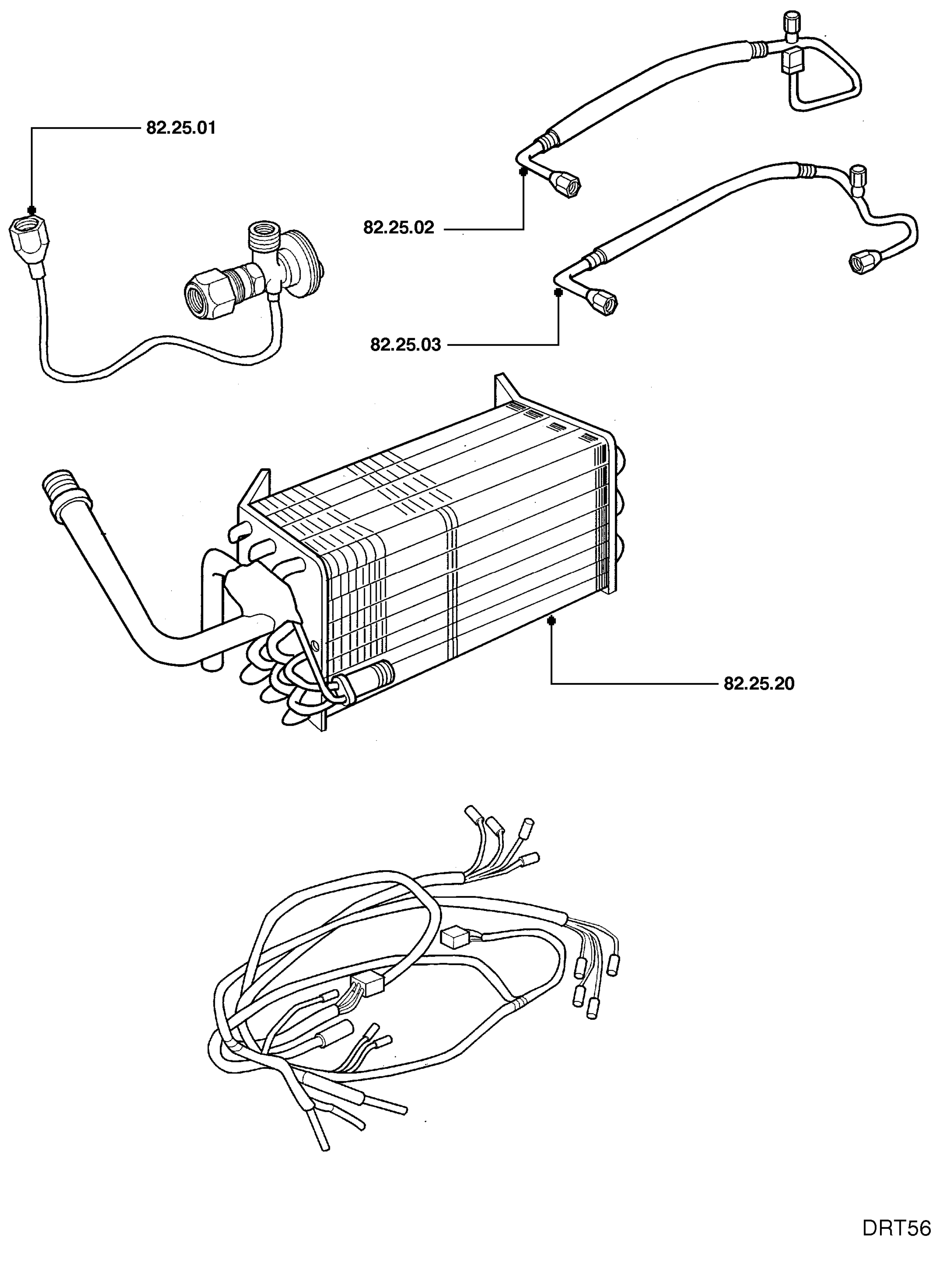


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82.20.27
82.20.09
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82.20.86
82.10.20
82.17.01
82.15.07
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DRT55

(Operations DO NOT include depressurize, evacuate, flush & recharge system)

| | | | |
|---|---|---|---|
| **82.25** | **COOLING UNIT** | | |
| 82.25.01 | Valve - thermostatic expansion (TXV) - replace .......................... . | 01.30 | 8Q8 |
| 82.25.02 | Hose - evaporator to compressor - replace .................................. . | 00.30 | 8Q5 |
| 82.25.03 | Hose - receiver/drier to evaporator - replace ................................ . | 01.70 | 8Q5 |
| 82.25.14 | Blower assembly - replace............................................................ . | 01.50 | |
| 82.25.20 | Evaporator - replace. ..................................................................... . | 01.90 | 8Q6 |
| 82.25.26 | Hoses - drain - evaporator - replace ............................................ . | 00.20 | 8N1 |
| **82.30** | **TESTING AND CHARGING** | | |
| 82.30.02 | Air conditioning system - depressurise - evacuate - capture & . recharge ........................................................................................ | 01.20 | - |
| 82.30.02/01 | Air conditioning system - depressurise - evacuate - capture & . recharge - vehicle in shop .......................................................... | 01.10 | - |

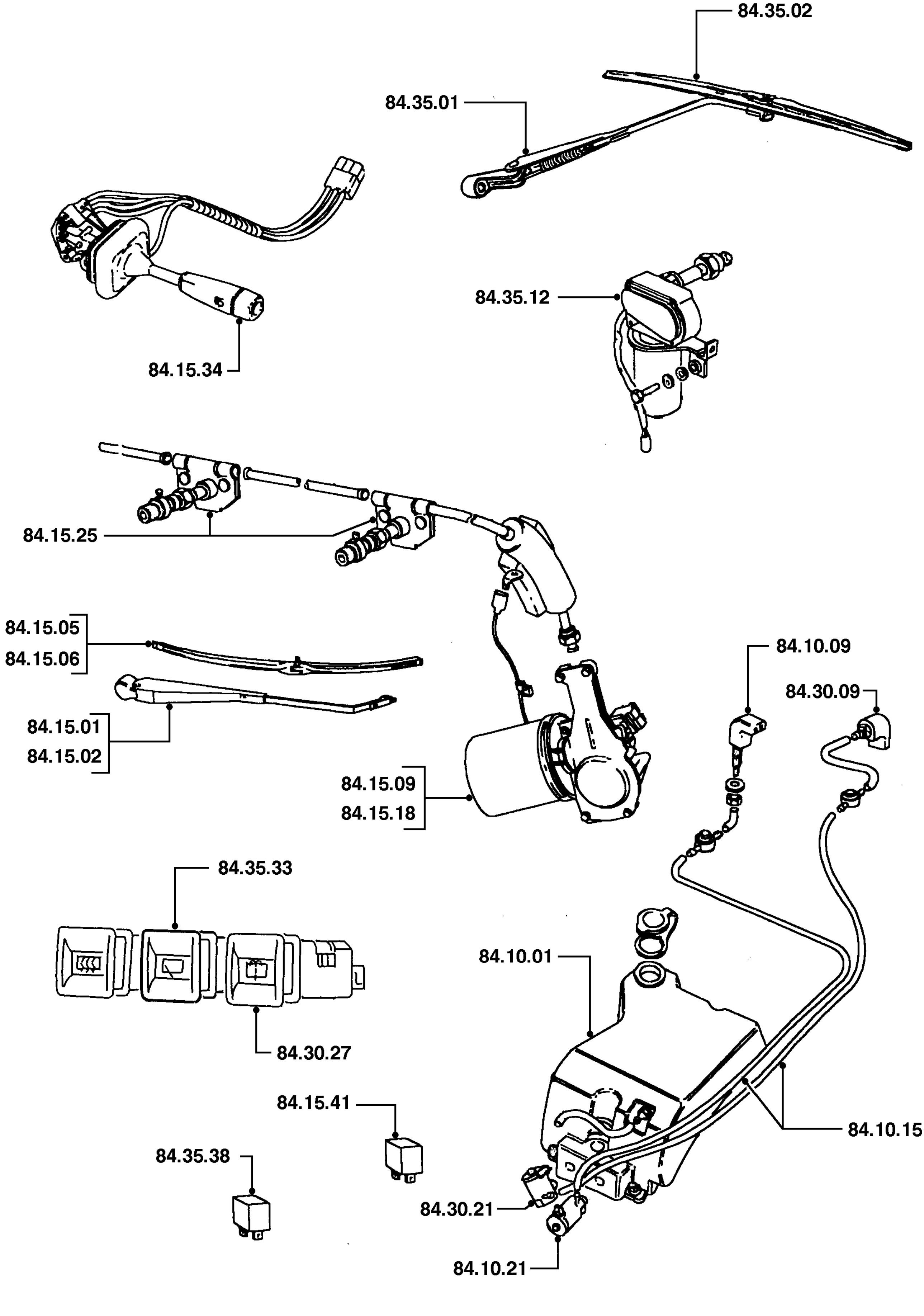
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DRT56

| | | | |
|---|---|---|---|
| **84.10** | **WINDSHIELD WASHERS** | | |
| 84.10.01 | Tank - washer - replace | 00.60 | 6Q3 |
| 84.10.09 | Jets - washer - set - replace | 00.70 | 6Q7 |
| 84.10.15 | Tubes - washer - each section - replace | 01.80 | 7Q5 |
| 84.10.21 | Pump - washer - replace | 00.40 | 7Q1 |
| **84.15** | **WINDSHIELD WIPERS** | | |
| 84.15.01 | Arms - wiper - set - replace | 00.20 | 7R6 |
| 84.15.02 | Arm - wiper - each - replace | 00.20 | 7R6 |
| 84.15.05 | Blades - wiper - set - replace. | 00.10 | 7R6 |
| 84.15.06 | Blade - wiper - each - replace. | 00.10 | 7R6 |
| 84.15.09 | Motor & drive - wiper - replace | 01.10 | * |
| 84.15.18 | Motor - wiper - overhaul | 01.70 | * |
| 84.15.25 | Wheelbox/drive pivot - set - replace | 01.40 | 7R4 |
| 84.15.34 | Switch - wiper/washer - replace | 00.70 | 7R2 |
| 84.15.41 | Relay - wiper motor - replace | 00.20 | 7R8 |
| **84.30** | **TAILGATE GLASS/BACKLIGHT WASHERS** | | |
| 84.30.09 | Jet(s) - washer - replace | 00.90 | 6Q7 |
| 84.30.21 | Pump - washer - replace | 00.40 | 7Q3 |
| 84.30.27 | Switch - washer - rear - replace | 00.20 | 7Q4 |
| **84.35** | **TAILGATE GLASS/BACKLIGHT WIPER** | | |
| 84.35.01 | Arm - wiper - replace | 00.30 | 7R6 |
| 84.35.02 | Blade - wiper - replace. | 00.20 | 7R6 |
| 84.35.12 | Motor - wiper - rear - replace. | 00.40 | 7R3 |
| 84.35.33 | Switch - wiper - rear - replace | 00.20 | 7R5 |
| 84.35.38 | Relay - tailgate wipe - replace | 00.20 | 7R8 |

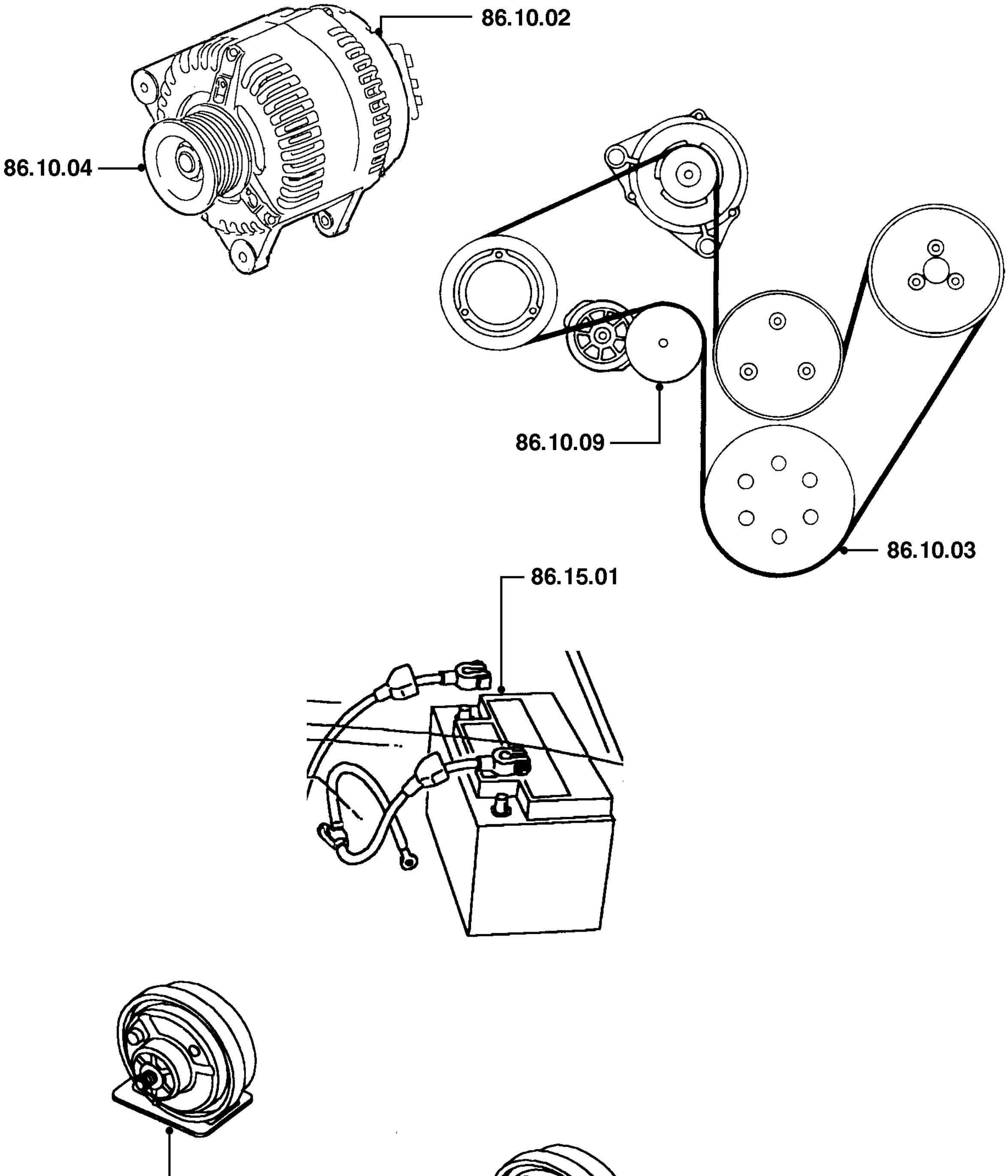
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84.35.02
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84.15.02
84.15.09
84.15.18
84.10.09
84.30.09
84.35.33
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84.30.21
84.10.21

DRT19

| | | | |
|---|---|---|---|
| **86.10** | **ALTERNATOR & CONTROL UNIT** | | |
| 86.10.01 | Test charging system (battery load & generator output) .............. . | 00.60 | 7E0 |
| 86.10.02 | Alternator - replace. ...................................................................... . | 00.50 | 7D5 |
| 86.10.03 | Drive belt - alternator - replace .................................................... . | 00.40 | 2G3 |
| 86.10.04 | Pulley - alternator - replace .......................................................... . | 00.40 | 2G2 |
| 86.10.09 | Automatic tensioner - alternator drive belt - replace .................... . | 00.40 | |
| **86.15** | **BATTERY** | | |
| 86.15.01 | Battery(s) - each - replace ............................................................ . | 00.40 | 7E2 |
| 86.15.17 | Battery lead - positive - replace .................................................... . | 01.30 | 7E3 |
| 86.15.19 | Battery lead - negative - replace .................................................. . | 00.40 | 7E3 |
| **86.30** | **HORNS** | | |
| 86.30.09 | Horns - set - replace ..................................................................... . | 00.20 | 7Q6 |
| 86.30.10 | Horn - each - replace..................................................................... . | 00.20 | 7Q6 |

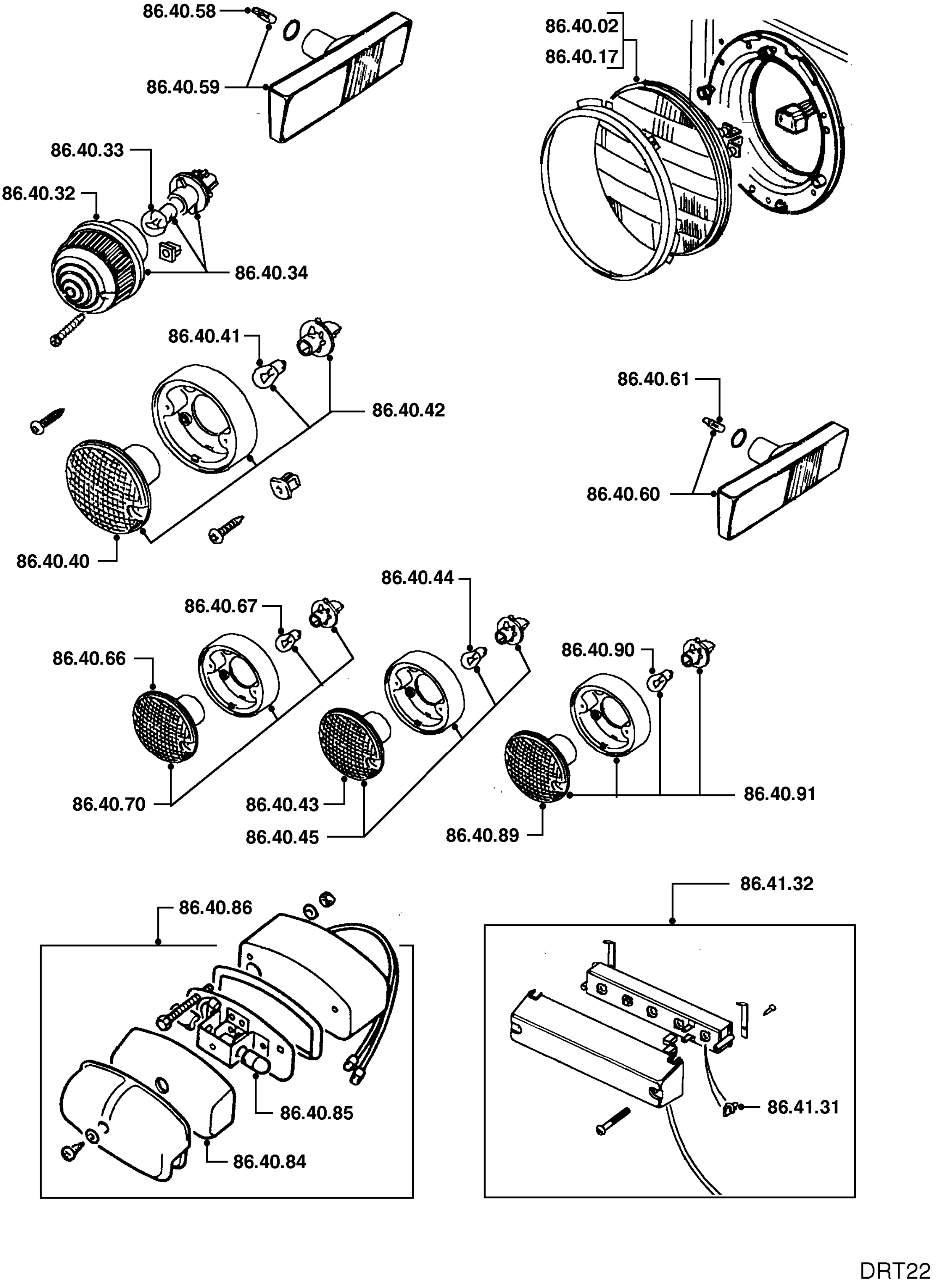
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DRT21

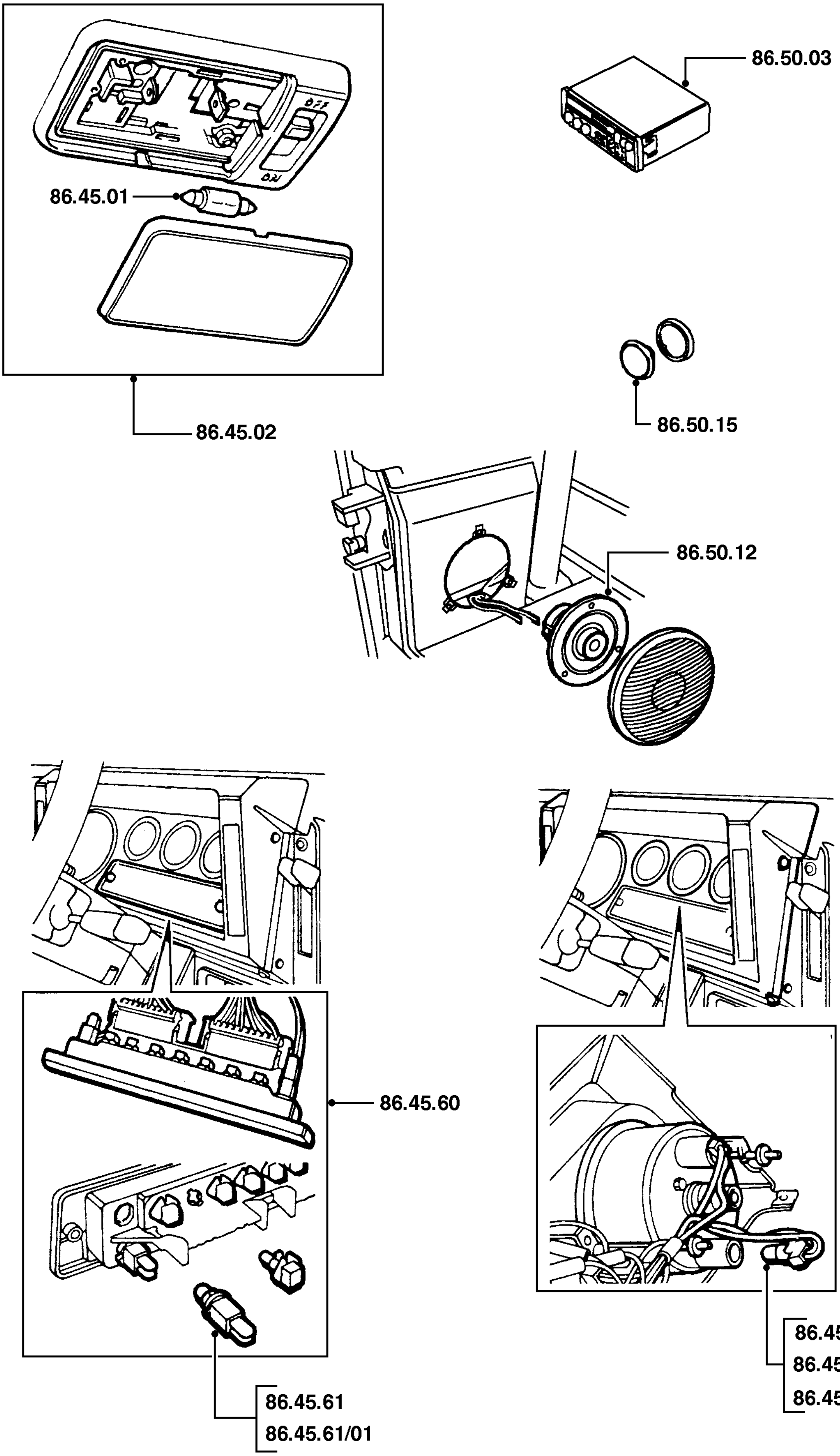
| | | | |
|---|---|---|---|
| **86.40** | **LAMPS - EXTERIOR** | | |
| | **(Operations do not include headlamp alignment)** | | |
| 86.40.02 | Headlamp assembly - outer/single - replace ................................ . | 00.40 | 7J1 |
| 86.40.17 | Headlamps - pair - aim beam ...................................................... . | 00.30 | 7J1 |
| 86.40.32 | Lens - side/park lamp - front - replace .......................................... . | 00.20 | 7J2 |
| 86.40.33 | Bulb - side/park lamp - front - replace .......................................... . | 00.20 | 7J2 |
| 86.40.34 | Lamp assembly - side/park - front - replace.................................. . | 00.20 | 7J2 |
| 86.40.40 | Lens - turn signal lamp - front - replace ........................................ . | 00.20 | 7J2 |
| 86.40.41 | Bulb - turn signal lamp - front - replace ........................................ . | 00.20 | 7J2 |
| 86.40.42 | Lamp assembly - turn signal - front - replace................................ . | 00.30 | 7J2 |
| 86.40.43 | Lens - turn signal lamp - rear - replace. ........................................ . | 00.20 | 7J3 |
| 86.40.44 | Bulb - turn signal lamp - rear - replace. ........................................ . | 00.20 | 7J3 |
| 86.40.45 | Lamp assembly - turn signal - rear - replace ................................ . | 00.20 | 7J3 |
| 86.40.58 | Bulb - side marker - front - replace .............................................. . | 00.20 | 7J4 |
| 86.40.59 | Lamp assembly - side marker - front - replace ............................ . | 00.20 | 7J3 |
| 86.40.60 | Lamp assembly - side marker - rear - replace .............................. . | 00.20 | 7J3 |
| 86.40.61 | Bulb - side rear marker - replace ................................................... . | 00.20 | 7J4 |
| 86.40.66 | Lens - tail lamp - each - replace ................................................... . | 00.20 | 7J3 |
| 86.40.67 | Bulb - tail lamp - each - replace ..................................................... . | 00.20 | 7J3 |
| 86.40.70 | Lamp assembly - tail - LH/each - replace. .................................... . | 00.20 | 7J3 |
| 86.40.84 | Lens - license plate lamp - replace .............................................. . | 00.20 | 7J5 |
| 86.40.85 | Bulb - license plate lamp - replace................................................ . | 00.20 | 7J5 |
| 86.40.86 | Lamp assembly - license plate - replace ...................................... . | 00.30 | 7J5 |
| 86.40.89 | Lens - back up lamp - replace ....................................................... . | 00.20 | 7J6 |
| 86.40.90 | Bulb - back up lamp - replace ........................................................ . | 00.20 | 7J6 |
| 86.40.91 | Lamp assembly - back up - replace................................................ . | 00.20 | 7J6 |
| **86.41** | **LAMPS - EXTERIOR continued** | | |
| | **(Operations do not include headlamp alignment)** | | |
| 86.41.31 | Bulb(s) - center high mounted stop lamp - replace ....................... . | 00.20 | 7J0 |
| 86.41.32 | Lamp assembly - center high mounted stop - replace. ................ . | 00.20 | 7J0 |

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86.40.58
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|---|---|---|---|
| **86.45** | **LAMPS - INTERIOR** | | |
| 86.45.01 | Bulb - roof lamp - replace ............................................................ . | 00.10 | 7J9 |
| 86.45.02 | Lamp assembly - roof - replace. .................................................. . | 00.20 | 7J9 |
| 86.45.49 | Bulb - illumination - speedometer - replace .................................. . | 00.40 | 7K1 |
| 86.45.51 | Bulb - illumination - temperature gauge - replace ........................ . | 00.40 | 7K1 |
| 86.45.52 | Bulb - illumination - fuel gauge - replace ..................................... . | 00.40 | 7K1 |
| 86.45.56 | Bulb - illumination - ammeter/battery condition gauge - replace .. . | 00.40 | |
| 86.45.60 | Lamp assembly - warning - replace.............................................. . | 00.40 | 7K1 |
| 86.45.61 | Bulbs - warning light - each - replace .......................................... . | 00.40 | 7K8 |
| 86.45.61/01 | Bulbs - warning light - each extra - replace .................................. . | 00.10 | 7K8 |
| **86.50** | **AUDIO** | | |
| 86.50.03 | Radio - replace/exchange ............................................................ . | 00.20 | 7Z3 |
| 86.50.12 | Speaker - rear - replace................................................................ . | 00.20 | 7Z5 |
| 86.50.15 | Speaker - front - replace .............................................................. . | 00.20 | 7Z5 |

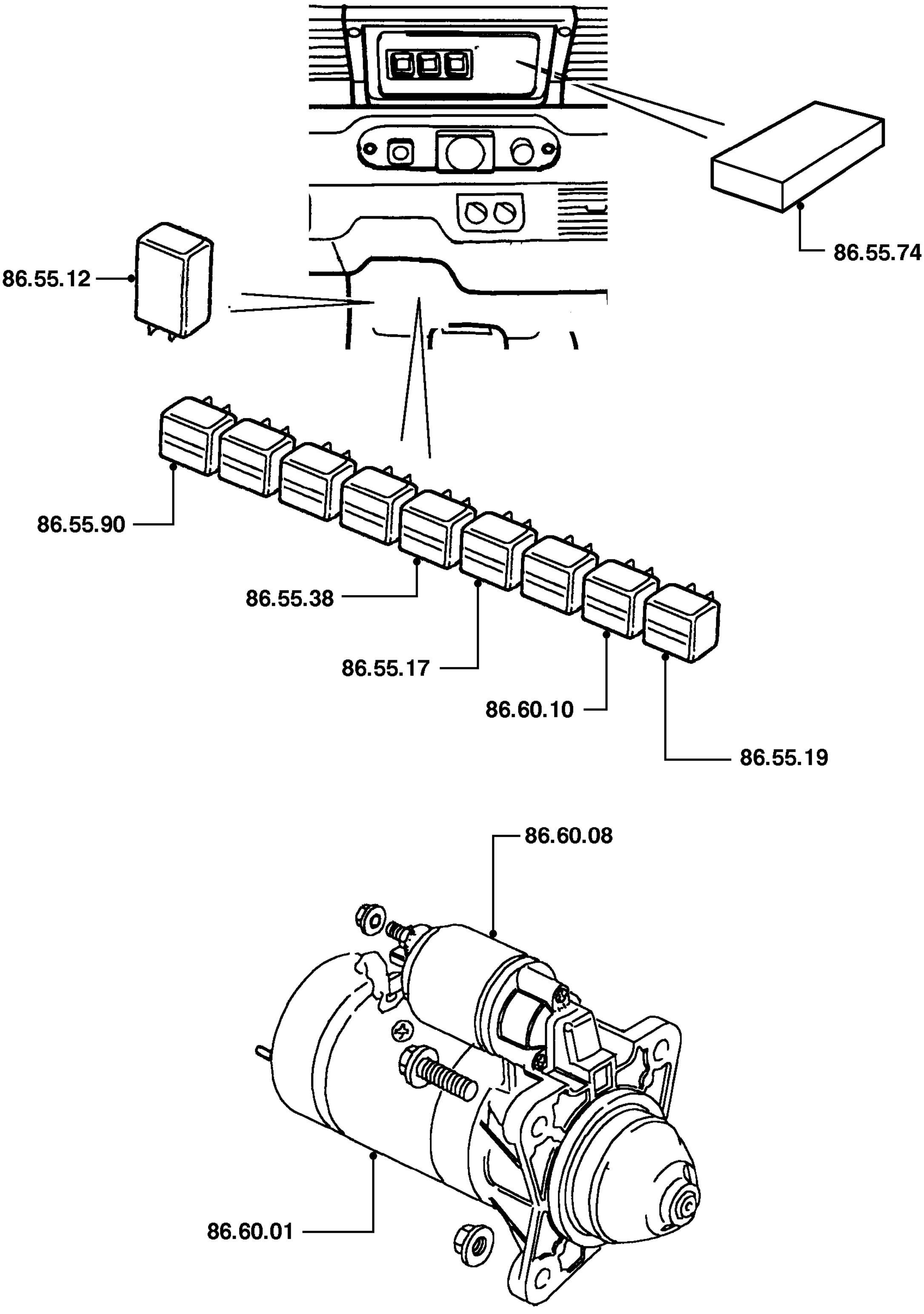
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86.50.03
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86.45.02
86.50.15
86.50.12
86.45.60
86.45.61
86.45.61/01
86.45.49
86.45.51
86.45.52

DRT23

| | | | |
|---|---|---|---|
| **86.55** | **RELAYS, FLASHERS & MODULES** | | |
| 86.55.12 | Flasher unit - hazard warning - replace ........................................ . | 00.50 | 7M4 |
| 86.55.17 | Relay - headlamps - replace ........................................................ . | 00.20 | 7M3 |
| 86.55.19 | Relay - heated backlight - replace ................................................ . | 00.20 | 7X8 |
| 86.55.38 | Relay - gearshift illumination - replace. ........................................ . | 00.20 | |
| 86.55.74 | Module - front wipers & side lights - replace ................................ . | 00.30 | 6U1 |
| 86.55.90 | Relay - instrument illumination - replace ...................................... . | 00.20 | |
| **86.60** | **STARTER MOTOR** | | |
| 86.60.01 | Starter motor - replace.................................................................. . | 00.70 | 7C1 |
| 86.60.08 | Solenoid - starter - replace .......................................................... . | 00.80 | 7C5 |
| 86.60.10 | Relay - starter - replace ................................................................ . | 00.20 | 7C7 |

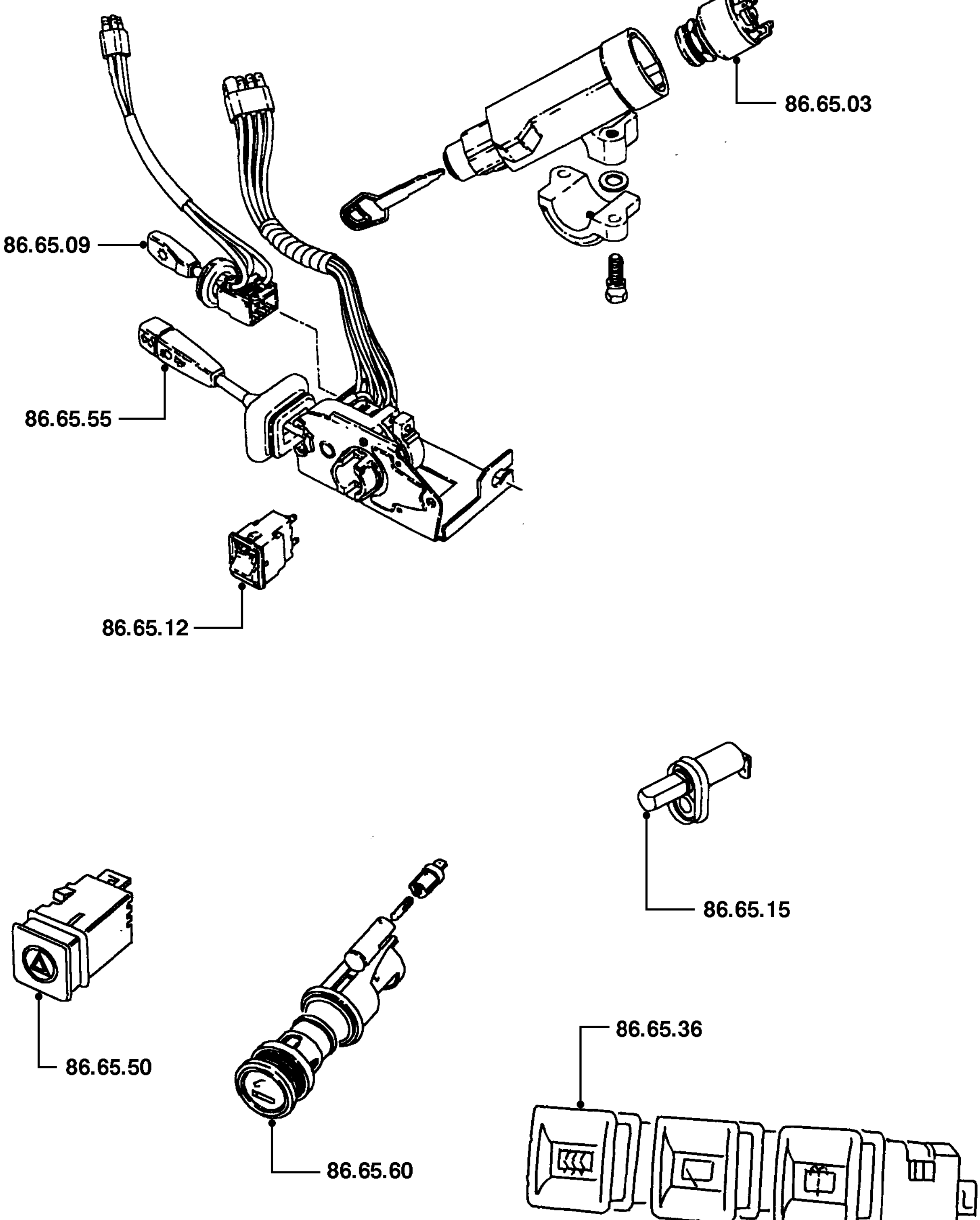
**A - WRONGLY ADJUSTED**
**B - POROUS/ADRIFT**
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**U - INACCURATE/SLIPPING**
**V - BULB/LIGHT UNIT FAILURE**
**W - VIBRATION/OUT OF BALANCE**
**X - BRAKE PULL/SURFACE DAMAGE**
**Z - INOPERATIVE**


86.55.74
86.55.12
86.55.90
86.55.38
86.55.17
86.60.10
86.55.19
86.60.08
86.60.01

DRT24

| | | | |
|---|---|---|---|
| **86.65** | **SWITCHES & CIGAR LIGHTERS** | | |
| 86.65.03 | Switch only - steering lock - replace ............................................ . | 00.70 | 7B4 |
| 86.65.09 | Switch - master lighting - replace.................................................. . | 00.40 | 7L1 |
| 86.65.12 | Switch - panel light - replace......................................................... . | 00.20 | 7M1 |
| 86.65.15 | Switch - door pillar (interior lights) - replace................................. . | 00.20 | 7L6 |
| 86.65.36 | Switch - backlight heater - replace................................................ . | 00.20 | 7X9 |
| 86.65.50 | Switch - hazard warning - replace ................................................ . | 00.20 | 7L4 |
| 86.65.55 | Switch - combined turn signal/headlight/horn - replace ................ . | 00.60 | * |
| 86.65.60 | Cigar lighter - front - replace ........................................................ . | 00.30 | 7Z1 |

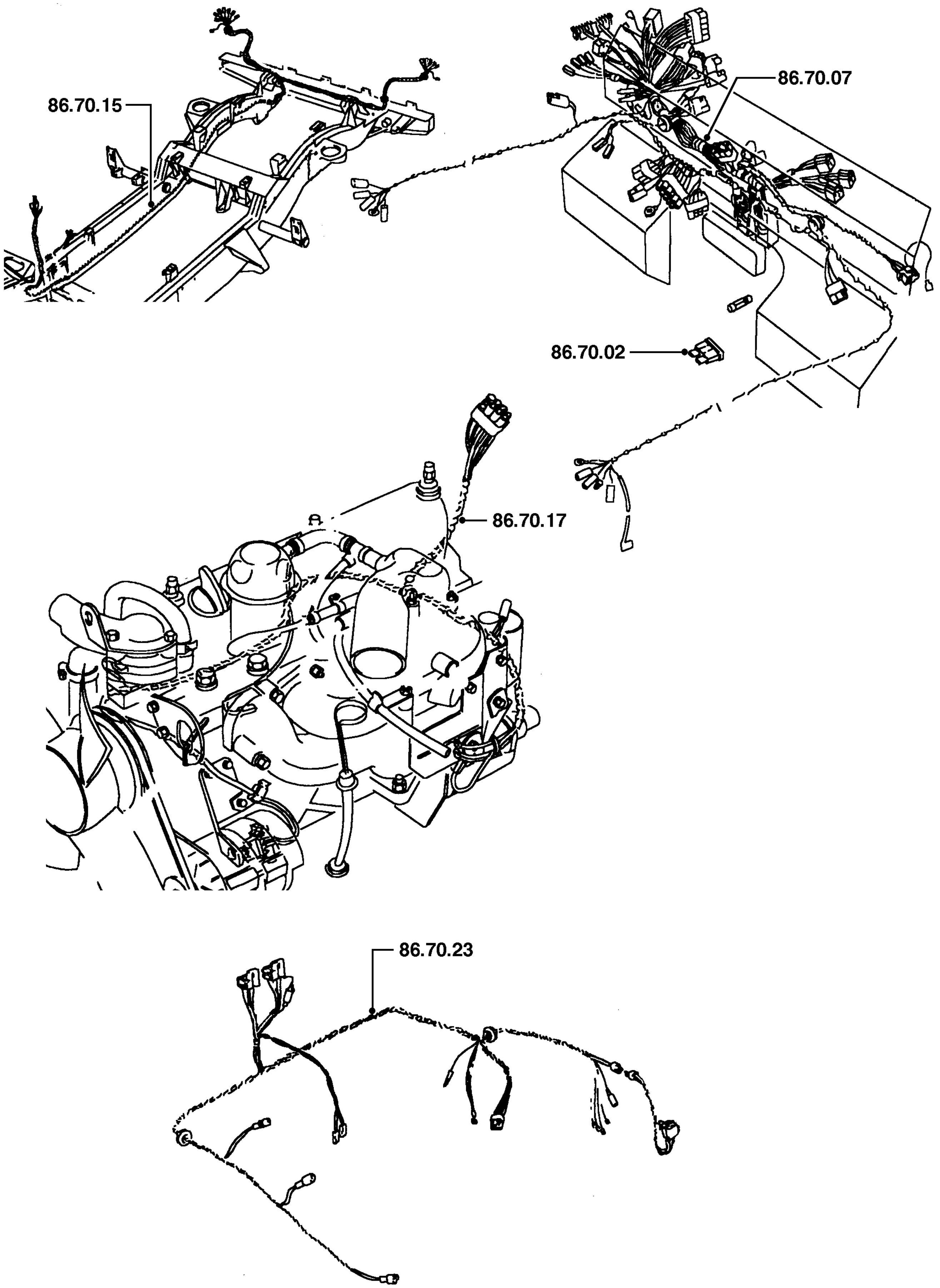
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**W - VIBRATION/OUT OF BALANCE**
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**Z - INOPERATIVE**




DRT25

| | | | |
|---|---|---|---|
| **86.70** | **WIRING & FUSES** | | |
| 86.70.02 | Fuse - replace (one per repair only) ........................................... . | 00.10 | 7Z2 |
| 86.70.07 | Harness - main - replace .............................................................. . | 06.70 | 7Y1 |
| 86.70.15 | Harness - rear - replace................................................................ . | 02.10 | 7Y1 |
| 86.70.17 | Harness - engine - replace ......................................................... . | 02.60 | 7Y1 |
| 86.70.19 | Harness - trunk lid/tailgate - replace ............................................ . | 00.80 | 7Y1 |
| 86.70.23 | Harness - air conditioning - replace.............................................. . | 01.60 | 8R0 |
| 86.70.50 | Harness - engine compartment - replace ................................... . | 01.20 | |
| **86.77** | **ALARM SYSTEM** | | |
| 86.77.01 | Main module (ECU) - alarm system - replace ............................. . | 00.70 | 6S1 |

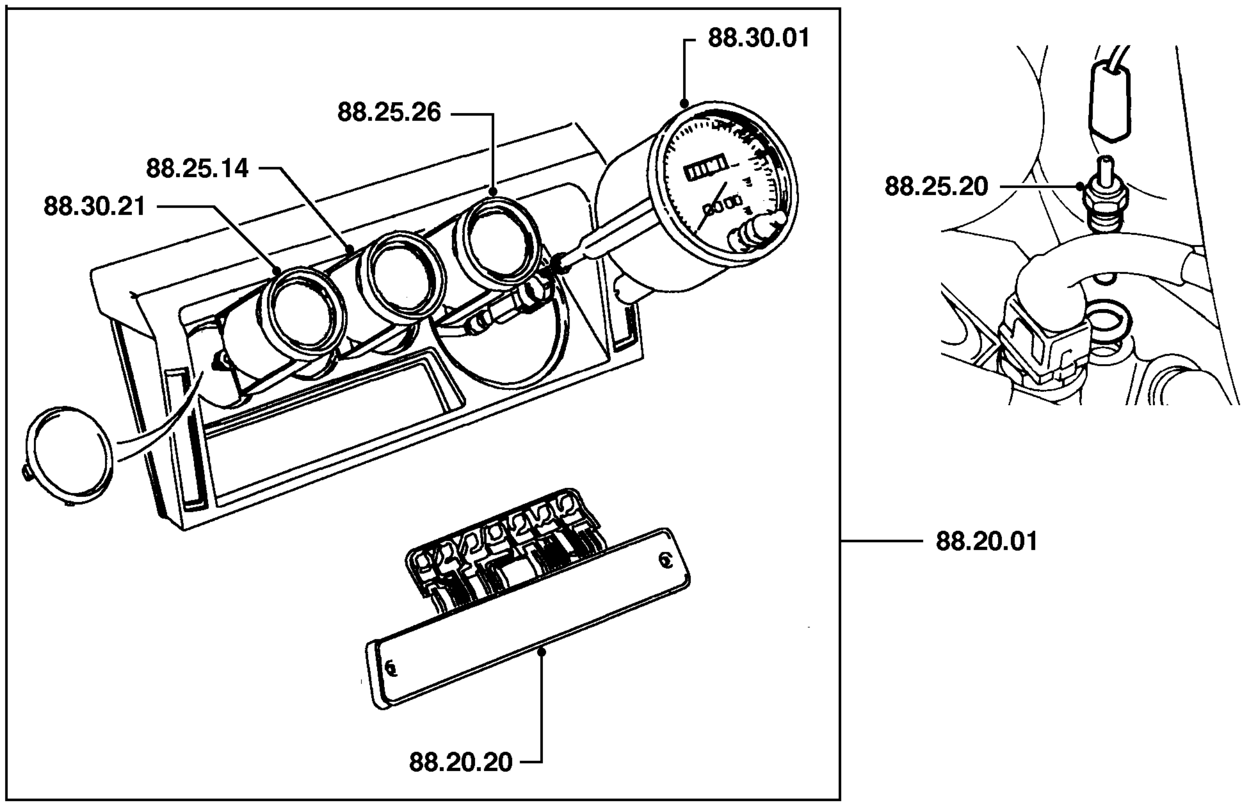
A - WRONGLY ADJUSTED
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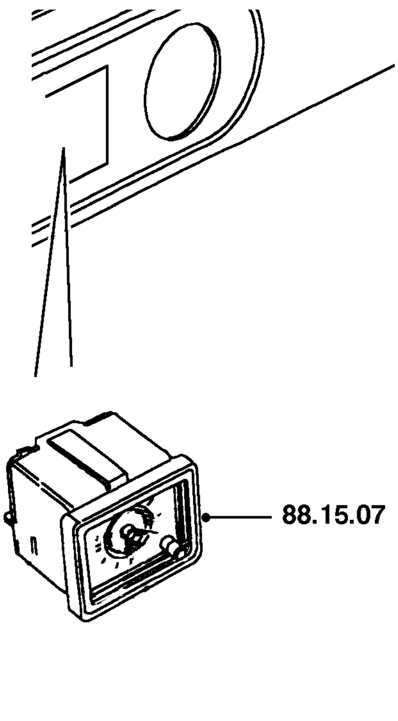



DRT26

| | | | |
|---|---|---|---|
| **88.15** | **CLOCK** | | |
| 88.15.07 | Clock - replace | 00.20 | 7V7 |
| **88.20** | **INSTRUMENT PANEL** | | |
| 88.20.01 | Instrument pack - replace | 00.30 | * |
| 88.20.20 | Printed circuit - warning lamp cluster - replace | 00.50 | 7V9 |
| **88.25** | **OIL, COOLANT & FUEL GAUGES** | | |
| 88.25.14 | Gauge - coolant temperature - replace | 00.40 | 7U1 |
| 88.25.20 | Transmitter - coolant temperature - replace | 00.20 | 7U3 |
| 88.25.26 | Gauge - fuel - replace | 00.40 | 7U7 |
| **88.30** | **SPEEDOMETER & TACHOMETER** | | |
| 88.30.01 | Speedometer - replace | 00.40 | 7T1 |
| 88.30.14 | Transducer - speed - replace | 00.30 | 7T2 |
| 88.30.21 | Tachometer - replace. | 00.40 | 7T5 |

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**S - OPEN CIRCUIT/BLOCKED**
**T - SHORT CIRCUIT/THREAD DAMAGE**
**U - INACCURATE/SLIPPING**
**V - BULB/LIGHT UNIT FAILURE**
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**Z - INOPERATIVE**




DRT27

| REPAIR CODE | PCM DIAGNOSTIC TROUBLE CODES | DTC | MIL | CLAIM | WTY CODE | DRIVE CYCLE |
|---|---|---|---|---|---|---|
| | **GEMS CODES** | | | | | |
| 19.22.0101 | MAF sensor circuit performance | P0101 | Y | 0.05 | 7W2 | B |
| 19.22.0102 | MAF sensor circuit low input | P0102 | Y | 0.05 | 7W2 | A |
| 19.22.0103 | MAF sensor circuit high input | P0103 | Y | 0.05 | 7W2 | A |
| 19.22.0111 | IAT sensor circuit performance | P0111 | Y | 0.05 | 7G4 | C |
| 19.22.0112 | IAT sensor circuit low input | P0112 | Y | 0.05 | 7G4 | A |
| 19.22.0113 | IAT sensor circuit high input | P0113 | Y | 0.05 | 7G4 | A |
| 19.22.0116 | ECT sensor circuit performance, falling temp | P0116 | Y | 0.05 | 7G3 | A |
| 19.22.0117 | ECT sensor circuit low input | P0117 | Y | 0.05 | 7G3 | A |
| 19.22.0118 | ECT sensor circuit high input | P0118 | Y | 0.05 | 7G3 | A |
| 19.22.0121 | TPS sensor circuit performance | P0121 | Y | 0.05 | 7G5 | B |
| 19.22.0122 | TPS sensor circuit low input | P0122 | Y | 0.05 | 7G5 | A |
| 19.22.0123 | TPS sensor circuit high input | P0123 | Y | 0.05 | 7G5 | A |
| 19.22.0125 | ECT excessive time to closed loop fuel control | P0125 | Y | 0.05 | 7G3 | B |
| 19.22.0130 | H02S switching cycle bank 1 (A), upstream | P0130 | Y | 0.05 | 2T5 | C |
| 19.22.0131 | H02S circuit low volt, upstream sensor bank 1 (A) | P0131 | Y | 0.05 | 2T5 | C |
| 19.22.0132 | H02S circuit high volt, upstream sensor bank 1 (A) | P0132 | Y | 0.05 | 2T5 | C |
| 19.22.0133 | H02S circuit slow response, upstream bank 1 (A) | P0133 | Y | 0.05 | 2T5 | C |
| 19.22.0136 | H02S switching cycle bank 1 (A), downstream | P0136 | N | 0.05 | 2T5 | C |
| 19.22.0137 | H02S circuit low volt, downstream sensor bank 1 (A) | P0137 | Y | 0.05 | 2T5 | C |
| 19.22.0138 | H02S circuit high volt, downstream sensor bank 1 (A) | P0138 | Y | 0.05 | 2T5 | C |
| 19.22.0139 | H02S circuit slow response, downstream bank 1 (A) | P0139 | N | 0.05 | 2T5 | C |
| 19.22.0150 | H02S switching cycle bank 2 (B), upstream | P0150 | Y | 0.05 | 2T6 | C |
| 19.22.0151 | H02S circuit low volt, upstream sensor bank 2 (B) | P0151 | Y | 0.05 | 2T6 | C |
| 19.22.0152 | H02S circuit high volt, upstream sensor bank 2 (B) | P0152 | Y | 0.05 | 2T6 | C |
| 19.22.0153 | H02S circuit slow response, upstream bank 2 (B) | P0153 | Y | 0.05 | 2T6 | C |
| 19.22.0156 | H02S switching cycle bank 2 (B), downstream | P0156 | N | 0.05 | 2T6 | C |
| 19.22.0157 | H02S circuit low volt, downstream sensor bank 2 (B) | P0157 | Y | 0.05 | 2T6 | C |
| 19.22.0158 | H02S circuit high volt, downstream sensor bank 2 (B) | P0158 | Y | 0.05 | 2T6 | C |
| 19.22.0159 | H02S circuit slow response, downstream bank 2 (B) | P0159 | N | 0.05 | 2T6 | C |
| 19.22.0171 | System too lean, bank 1 (A) | P0171 | Y | 0.05 | 2T5 | C |
| 19.22.0172 | System too rich bank 1 (A) | P0172 | Y | 0.05 | 2T5 | C |
| 19.22.0174 | System too lean, bank 2 (B) | P0174 | Y | 0.05 | 2T6 | C |
| 19.22.0175 | System too rich bank 2 (B) | P0175 | Y | 0.05 | 2T6 | C |
| 19.22.0181 | Fuel temperature inaccurate compared to ECT | P0181 | Y | 0.05 | 7G9 | A |
| 19.22.0182 | Fuel temperature sensor circuit low input | P0182 | Y | 0.05 | 7G9 | A |
| 19.22.0183 | Fuel temperature sensor circuit high input | P0183 | Y | 0.05 | 7G9 | A |
| 19.22.0201 | Injector circuit fault, cylinder 1 | P0201 | Y | 0.05 | 2P2 | A |
| 19.22.0202 | Injector circuit fault, cylinder 2 | P0202 | Y | 0.05 | 2P2 | A |
| 19.22.0203 | Injector circuit fault, cylinder 3 | P0203 | Y | 0.05 | 2P2 | A |
| 19.22.0204 | Injector circuit fault, cylinder 4 | P0204 | Y | 0.05 | 2P2 | A |
| 19.22.0205 | Injector circuit fault, cylinder 5 | P0205 | Y | 0.05 | 2P2 | A |
| 19.22.0206 | Injector circuit fault, cylinder 6 | P0206 | Y | 0.05 | 2P2 | A |
| 19.22.0207 | Injector circuit fault, cylinder 7 | P0207 | Y | 0.05 | 2P2 | A |
| 19.22.0208 | Injector circuit fault, cylinder 8 | P0208 | Y | 0.05 | 2P2 | A |
| 19.22.0300 | Misfire on multiple cylinders | P0300 | N | 0.05 | 7G1 | C |



*** Re-check with TestBook after a full power down**

| REPAIR CODE | PCM DIAGNOSTIC TROUBLE CODES | DTC | MIL | CLAIM | WTY CODE | DRIVE CYCLE |
|---|---|---|---|---|---|---|
| 19.22.0301 | Misfire on cylinder 1 | P0301 | N | 0.05 | 7G1 | C |
| 19.22.0302 | Misfire on cylinder 2 | P0302 | N | 0.05 | 7G1 | C |
| 19.22.0303 | Misfire on cylinder 3 | P0303 | N | 0.05 | 7G1 | C |
| 19.22.0304 | Misfire on cylinder 4 | P0304 | N | 0.05 | 7G1 | C |
| 19.22.0305 | Misfire on cylinder 5 | P0305 | N | 0.05 | 7G1 | C |
| 19.22.0306 | Misfire on cylinder 6 | P0306 | N | 0.05 | 7G1 | C |
| 19.22.0307 | Misfire on cylinder 7 | P0307 | N | 0.05 | 7G1 | C |
| 19.22.0308 | Misfire on cylinder 8 | P0308 | N | 0.05 | 7G1 | C |
| 19.22.0326 | Continuous knock on bank 1(A) | P0326 | N | 0.05 | 7A0 | B |
| 19.22.0327 | Knock background noise low, bank 1(A) | P0327 | N | 0.05 | 7A0 | B |
| 19.22.0328 | Knock background noise high, bank 1(A) | P0328 | N | 0.05 | 7A0 | B |
| 19.22.0331 | Continuous knock on bank 2(B) | P0331 | N | 0.05 | 7A0 | B |
| 19.22.0332 | Knock background noise low, bank 2(B) | P0332 | N | 0.05 | 7A0 | B |
| 19.22.0333 | Knock background noise high, bank 2(B) | P0333 | N | 0.05 | 7A0 | B |
| 19.22.0335 | CKP sensor circuit fault, no signal | P0335 | Y | 0.05 | 7E7 | A |
| 19.22.0336 | CKP sensor inaccurate tooth count | P0336 | Y | 0.05 | 7E7 | A |
| 19.22.0340 | CMP sensor signal inaccurate compared to CKP signal | P0340 | Y | 0.05 | 7E8 | A |
| 19.22.0420 | Catalyst efficiency low, bank 1(A) | P0420 | Y | 0.05 | 2S2 | C |
| 19.22.0430 | Catalyst efficiency low, bank 2(B) | P0430 | Y | 0.05 | 2S4 | C |
| 19.22.0441 | EVAP cannister purge valve incorrect flow fault | P0441 | Y | 0.05 | 2N4 | C |
| 19.22.0442 | EVAP system small leak detected | P0442 | Y | 0.05 | 2N4 | D |
| 19.22.0443 | EVAP cannister purge valve circuit malfunction | P0443 | Y | 0.05 | 2N4 | A |
| 19.22.0446 | EVAP cannister vent valve circuit malfunction | P0446 | Y | 0.05 | 2N4 | A |
| 19.22.0451 | EVAP fuel tank pressure sensor performance | P0451 | Y | 0.05 | 2N6 | C |
| 19.22.0452 | EVAP fuel tank pressure sensor low input | P0452 | Y | 0.05 | 2N6 | C |
| 19.22.0453 | EVAP fuel tank pressure sensor high input | P0453 | Y | 0.05 | 2N6 | C |
| 19.22.0460 | Fuel level sensor circuit malfunction, (97MY onwards) | P0460 | Y | 0.05 | 7F9 | A |
| 19.22.0461 | Fuel level sensor signal not changing | P0461 | Y | 0.05 | 7F9 | A |
| 19.22.0500 | VSS malfunction | P0500 | Y | 0.05 | 7T2 | B |
| 19.22.0506 | IAC system RPM low | P0506 | Y | 0.05 | 7W1 | A |
| 19.22.0507 | IAC system RPM high | P0507 | Y | 0.05 | 7W1 | A |
| 19.22.0560 | System voltage low with high engine speed | P0560 | Y | 0.05 | 7G1 | A |
| 19.22.0562 | System voltage low | P0562 | N | 0.05 | 7G1 | A |
| 19.22.0563 | System voltage high | P0563 | N | 0.05 | 7G1 | A |
| 19.22.0605 | ECM data corrupted | P0605 | Y | 0.05 | 7G1 | A |
| 19.22.1137 | HO2S failed to switch to rich, upstream bank 1(A) | P1137 | Y | 0.05 | 2T5 | A |
| 19.22.1137 | HO2S failed to switch to rich, downstream bank 1(A) | P1137 | N | 0.05 | 2T5 | C |
| 19.22.1138 | HO2S failed to switch to lean, upstream bank 1(A) | P1138 | Y | 0.05 | 2T5 | C |
| 19.22.1138 | HO2S failed to switch to lean, downstream bank 1(A) | P1138 | N | 0.05 | 2T5 | C |
| 19.22.1157 | HO2S failed to switch to rich, upstream bank 2(B) | P1157 | Y | 0.05 | 2T6 | C |
| 19.22.1157 | HO2S failed to switch to rich, downstream bank 2(B) | P1157 | N | 0.05 | 2T6 | C |
| 19.22.1158 | HO2S failed to switch to lean, upstream bank 2(B) | P1158 | Y | 0.05 | 2T6 | C |
| 19.22.1158 | HO2S failed to switch to lean, downstream bank 2(B) | P1158 | N | 0.05 | 2T6 | C |
| 19.22.1171 | System too lean bank 1(A) and bank 2(B) | P1171 | Y | 0.05 | 2T5 | C |
| 19.22.1172 | System too rich bank 1(A) and bank 2(B) | P1172 | Y | 0.05 | 2T6 | C |
| 19.22.1176 | LTFT too lean banks 1 (A) and 2 (B), (FMFR) | P1176 | Y | 0.05 | 7W2 | C |



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|---|---|---|---|---|---|---|
| 19.22.1177 | LTFT too rich banks 1 (A) and 2 (B), (FMFR) | P1177 | Y | 0.05 | 7W2 | C |
| 19.22.1178 | LTFT too rich banks 1 (A) and 2 (B), (AMFR) | P1178 | Y | 0.05 | 7W2 | C |
| 19.22.1179 | LTFT too lean banks 1 (A) and 2 (B), (AMFR) | P1179 | Y | 0.05 | 7W2 | C |
| 19.22.1185 | H02S ECM circuitry detects open circuit, upstream sensors | P1185 | Y | 0.05 | 2T5 | C |
| 19.22.1186 | H02S ECM circuitry detects short circuit, upstream sensors | P1186 | Y | 0.05 | 2T5 | C |
| 19.22.1187 | H02S one heater open circuit, upstream sensors | P1187 | Y | 0.05 | 2T5 | C |
| 19.22.1188 | H02S both heaters open circuit, upstream sensors | P1188 | Y | 0.05 | 2T5 | C |
| 19.22.1189 | H02S htr circuit type 1 low resistance, upstream | P1189 | Y | 0.05 | 2T5 | C |
| 19.22.1190 | H02S htr circuit type 2 low resistance, upstream | P1190 | Y | 0.05 | 2T5 | C |
| 19.22.1191 | H02S ECM circuitry detects open circuit, downstream sensors | P1191 | Y | 0.05 | 2T5 | C |
| 19.22.1192 | H02S ECM circuitry detects short circuit, downstream sensors | P1192 | Y | 0.05 | 2T5 | C |
| 19.22.1193 | H02S one heater open circuit, downstream sensors | P1193 | Y | 0.05 | 2T5 | C |
| 19.22.1194 | H02S both heaters open circuit, downstream sensors | P1194 | Y | 0.05 | 2T5 | C |
| 19.22.1195 | H02S htr circuit type 1 low resistance, downstream | P1195 | Y | 0.05 | 2T5 | C |
| 19.22.1196 | H02S htr circuit type 2 low resistance, downstream | P1196 | Y | 0.05 | 2T5 | C |
| 19.22.1199 | Fuel level sensor circuit malfunction, (pre 97MY) | P1199 | Y | 0.05 | 7F9 | C |
| 19.22.1201 | Injector circuit open circuit or ground short, cylinder 1 | P1201 | Y | 0.05 | 2P2 | A |
| 19.22.1202 | Injector circuit open circuit or ground short, cylinder 2 | P1202 | Y | 0.05 | 2P2 | A |
| 19.22.1203 | Injector circuit open circuit or ground short, cylinder 3 | P1203 | Y | 0.05 | 2P2 | A |
| 19.22.1204 | Injector circuit open circuit or ground short, cylinder 4 | P1204 | Y | 0.05 | 2P2 | A |
| 19.22.1205 | Injector circuit open circuit or ground short, cylinder 5 | P1205 | Y | 0.05 | 2P2 | A |
| 19.22.1206 | Injector circuit open circuit or ground short, cylinder 6 | P1206 | Y | 0.05 | 2P2 | A |
| 19.22.1207 | Injector circuit open circuit or ground short, cylinder 7 | P1207 | Y | 0.05 | 2P2 | A |
| 19.22.1208 | Injector circuit open circuit or ground short, cylinder 8 | P1208 | Y | 0.05 | 2P2 | A |
| 19.22.1313 | Misfire likely to cause damage to catalyst bank 1(A) | P1313 | Y | 0.05 | 2S2 | A |
| 19.22.1314 | Misfire likely to cause damage to catalyst bank 2(B) | P1314 | Y | 0.05 | 2S4 | C |
| 19.22.1316 | Misfire causing excess emissions | P1316 | Y | 0.05 | 2S0 | C |
| 19.22.1317 | ABS rough road line low input | P1317 | Y | 0.05 | 7G1 | C |
| 19.22.1318 | ABS rough road line high input | P1318 | Y | 0.05 | 7G1 | A |
| 19.22.1361 | No ignition coil activation, coil 1 | P1361 | Y | 0.05 | 7A8 | A |
| 19.22.1362 | No ignition coil activation, coil 2 | P1362 | Y | 0.05 | 7A8 | A |
| 19.22.1363 | No ignition coil activation, coil 3 | P1363 | Y | 0.05 | 7A8 | A |
| 19.22.1364 | No ignition coil activation, coil 4 | P1364 | Y | 0.05 | 7A8 | A |
| 19.22.1371 | Early ignition coil activation, coil 1 | P1371 | Y | 0.05 | 7A8 | A |
| 19.22.1372 | Early ignition coil activation, coil 2 | P1372 | Y | 0.05 | 7A8 | A |
| 19.22.1373 | Early ignition coil activation, coil 3 | P1373 | Y | 0.05 | 7A8 | A |
| 19.22.1374 | Early ignition coil activation, coil 4 | P1374 | Y | 0.05 | 7A8 | A |
| 19.22.1440 | EVAP cannister purge valve stuck open | P1440 | Y | 0.05 | 2N4 | A |
| 19.22.1447 | EVAP cannister vent valve performance | P1447 | Y | 0.05 | 2N4 | D |
| 19.22.1448 | EVAP system major leak detected | P1448 | Y | 0.05 | 2N4 | D |
| 19.22.1496 | EVAP system gross leak detected | P1496 | Y | 0.05 | 2N4 | D |
| 19.22.1508 | IACV circuit open | P1508 | Y | 0.05 | 7W1 | * |
| 19.22.1509 | IACV circuit shorted | P1509 | Y | 0.05 | 7W1 | * |
| 19.22.1514 | Neutral detected during high load | P1514 | Y | 0.05 | 7H2 | C |
| 19.22.1516 | Gear change requested whilst in neutral | P1516 | Y | 0.05 | 7H2 | B |
| 19.22.1517 | Drive detected during cranking | P1517 | Y | 0.05 | 7H2 | B |



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| REPAIR CODE | PCM DIAGNOSTIC TROUBLE CODES | DTC | MIL | CLAIM | WTY CODE | DRIVE CYCLE |
|---|---|---|---|---|---|---|
| 19.22.1607 | MIL line open or short circuited | P1607 | N | 0.05 | 7G1 | A |
| 19.22.1621 | Security ECM communications timeout | P1621 | N | 0.05 | 7G1 | A |
| 19.22.1622 | Security ECM sent wrong code more than once consecutively | P1622 | N | 0.05 | 7G1 | A |
| 19.22.1701 | Transfer box fault | P1701 | Y | 0.05 | 7H8 | A |
| 19.22.1703 | Transfer box line open or short circuited | P1703 | Y | 0.05 | 7H8 | A |
| 19.22.1708 | Transfer box line short circuit fault | P1708 | Y | 0.05 | 7H8 | A |
| 19.22.1775 | Gearbox fault | P1775 | Y | 0.05 | 6U5 | B |
| 19.22.1776 | Gearbox ignition retard request duration | P1776 | Y | 0.05 | 6U5 | B |
| 19.22.1777 | Gearbox ignition retard request line fault | P1777 | Y | 0.05 | 6U5 | B |

| | E.A.T. CODES | | | | | |
|---|---|---|---|---|---|---|
| 44.90.01 | P1606/FTGR, Solenoid supply malfunction | 01 | Y | 0.05 | 6U5 | B |
| 44.90.02 | P1607/FEPROM1, TCM data corrupted | 02 | Y | 0.05 | 6U5 | A |
| 44.90.05 | P1121/FDK1, Throttle angle malfunction | 05 | Y | 0.05 | 6U5 | B |
| 44.90.06 | P0753,P0750/FMV1, Gear shift solenoid A malfunction (MV1) | 06 | Y | 0.05 | 6U5 | B |
| 44.90.07 | P0758,P0755/FMV2, Gear shift solenoid B malfunction (MV2) | 07 | Y | 0.05 | 6U5 | B |
| 44.90.09 | NA/FPRGANZ1, Mode indication output 1 malfunction (MES 1) | 09 | N | 0.05 | 6U5 | B |
| 44.90.10 | NA/FPRGANZE, Mode indication output 2 malfunction (MES 2) | 10 | N | 0.05 | 6U5 | B |
| 44.90.12 | P1120/FDKT, Throttle position malfunction | 12 | Y | 0.05 | 6U5 | B |
| 44.90.13 | P0743/FMVWK, Torque converter solenoid circuit malfunction | 13 | Y | 0.05 | 6U5 | B |
| 44.90.20 | P1606/FPLUSMV, Solenoid supply malfunction | 20 | Y | 0.05 | 6U5 | B |
| 44.90.21 | P0727,P0726/FN_MOT, Engine speed signal performance | 21 | Y | 0.05 | 6U5 | B |
| 44.90.22 | P0748,P0745/FDR, Pressure control regulator circuit malfunction | 22 | Y | 0.05 | 6U5 | B |
| 44.90.23 | P1609/FME, Engine torque reduction | 23 | Y | 0.05 | 6U5 | B |
| 44.90.24 | P0721/FRSS, Output shaft speed sensor performance | 24 | Y | 0.05 | 6U5 | B |
| 44.90.26 | P1608/FT_T, Engine Torque signal | 26 | Y | 0.05 | 6U5 | B |
| 44.90.27 | P0722/FFSTBR, Output shaft speed sensor, no signal | 27 | Y | 0.05 | 6U5 | B |
| 44.90.28 | P1607/FEPROM, TCM data corrupted | 28 | Y | 0.05 | 6U5 | A |
| 44.90.30 | P0705/FPOS, Gear position switch failure whilst running | 30 | Y | 0.05 | 6U5 | B |
| 44.90.31 | P0705/FPOSST, Gear position switch failure whilst starting | 31 | Y | 0.05 | 6U5 | A |
| 44.90.40 | P0730/FGANG1, 1st gear malfunction (97MY onwards) | 40 | Y | 0.05 | 6U5 | B |
| 44.90.41 | P0730/FGANG2, 2nd gear malfunction (97MY onwards) | 41 | Y | 0.05 | 6U5 | B |
| 44.90.42 | P0730/FGANG3, 3rd gear malfunction (97MY onwards) | 42 | Y | 0.05 | 6U5 | B |
| 44.90.43 | P0730/FGANG4, 4th gear malfunction (97MY onwards) | 43 | Y | 0.05 | 6U5 | B |
| 44.90.44 | P0740/FWK, Torque convertor clutch malfunction (97MY onwards) | 44 | Y | 0.05 | 6U5 | B |

***Terminology for above is P-code number/Fault name, Fault description***



*** Re-check with TestBook after a full power down**

# OBD CODES (14CUX)

| REPAIR CODE | OBD CODE DESCRIPTION | HOURS |
|---|---|---|
| 19.22.01 | MFI TESTING | |
| 19.22.01.02 * | MFI Dynnamic (Expert Tool Box) Test | 0.20 |
| 19.22.01.12 | MFI Initial Test, Access OBD Code “12” | 0.40 |
| 19.22.01.14 | MFI Initial Test, Access OBD Code “14” | 0.40 |
| 19.22.01.15 | MFI Initial Test, Access OBD Code “15” | 0.40 |
| 19.22.01.17 | MFI Initial Test, Access OBD Code “17” | 0.40 |
| 19.22.01.18 | MFI Initial Test, Access OBD Code “18” | 0.40 |
| 19.22.01.19 | MFI Initial Test, Access OBD Code “19” | 0.40 |
| 19.22.01.23 | MFI Initial Test, Access OBD Code “23” | 0.40 |
| 19.22.01.25 | MFI Initial Test, Access OBD Code “25” | 0.40 |
| 19.22.01.26 | MFI Initial Test, Access OBD Code “26” | 0.40 |
| 19.22.01.28 | MFI Initial Test, Access OBD Code “28” | 0.40 |
| 19.22.01.29 | MFI Initial Test, Access OBD Code “29” | 0.40 |
| 19.22.01.34 | MFI Initial Test, Access OBD Code “34” | 0.40 |
| 19.22.01.36 | MFI Initial Test, Access OBD Code “36” | 0.40 |
| 19.22.01.40 | MFI Initial Test, Access OBD Code “40” | 0.40 |
| 19.22.01.44 | MFI Initial Test, Access OBD Code “44” | 0.40 |
| 19.22.01.45 | MFI Initial Test, Access OBD Code “45” | 0.40 |
| 19.22.01.48 | MFI Initial Test, Access OBD Code “48” | 0.40 |
| 19.22.01.50 | MFI Initial Test, Access OBD Code “50” | 0.40 |
| 19.22.01.68 | MFI Initial Test, Access OBD Code “68” | 0.40 |
| 19.22.01.69 | MFI Initial Test, Access OBD Code “69” | 0.40 |
| 19.22.01.88 | MFI Initial Test, Access OBD Code “88” | 0.40 |
| 19.22.01.99 | MFI Initial Test, Light On, No OBD Code Stored | 0.40 |

***  This test procedure may be claimed in addition to an OBD code test only in situations where appropriate**

Note: One and **<u>ONLY</u>** one of the listed Initial Tests **<u>MUST</u>** be claimed any time a vehicle is diagnosed with a MIL illuminated.  If more than one OBD code is accessed, claim the test for the first code retrieved, enter the code(s) on a comment line and use fault code “M”.



*** Re-check with TestBook after a full power down**

# REQUEST FOR LABOR OPERATION TIME REVIEW

**DEALER CODE**___________________ **DEALER NAME** ________________________

**TECHNICIAN**_____________________

**TELEPHONE**_____________________ **DATE** _________________________________

**LABOR CODE**____________________ **DESCRIPTION** _________________________

**CAR MODEL** _____________________

| EXISTING TIME | ATTEMPT | ACTUAL TIME | RO# |
|---|---|---|---|
| | FIRST | | |
| | SECOND | | |
| | THIRD | | |

**COMMENTS:**_____________________________________________________________

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

**Return this form with the following supporting documentation* to:**

**United States**

**Land Rover Warranty Administration**
**4371 Parliament Place**
**Lanham, MD 20706**

**Canada**

**Land Rover Warranty Administration**
**2425 Skymark Avenue, Unit 6**
**Mississauga, ON L4W 4Y6**

1. **Copies of 3 repair orders requiring this operation.**
2. **Punch times related to this operation from the same technician for the 3 repair orders referenced above.**
3. **List each step and the time needed to perform it for this procedure on the back of this form. Describe in detail any specific problems or procedures you encountered.**

*** Requests lacking documentation may not be processed! Times modified due to a Labor Operation Review are subject to re-evaluation with the next printing of the Warranty Codes Manual.**

# REQUEST FOR LABOR OPERATION TIME REVIEW

| STEP # | WORK PROCEDURE | ACTUAL TIME |
|---|---|---|
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SERVICE MANAGER ______________________________ DATE ________________